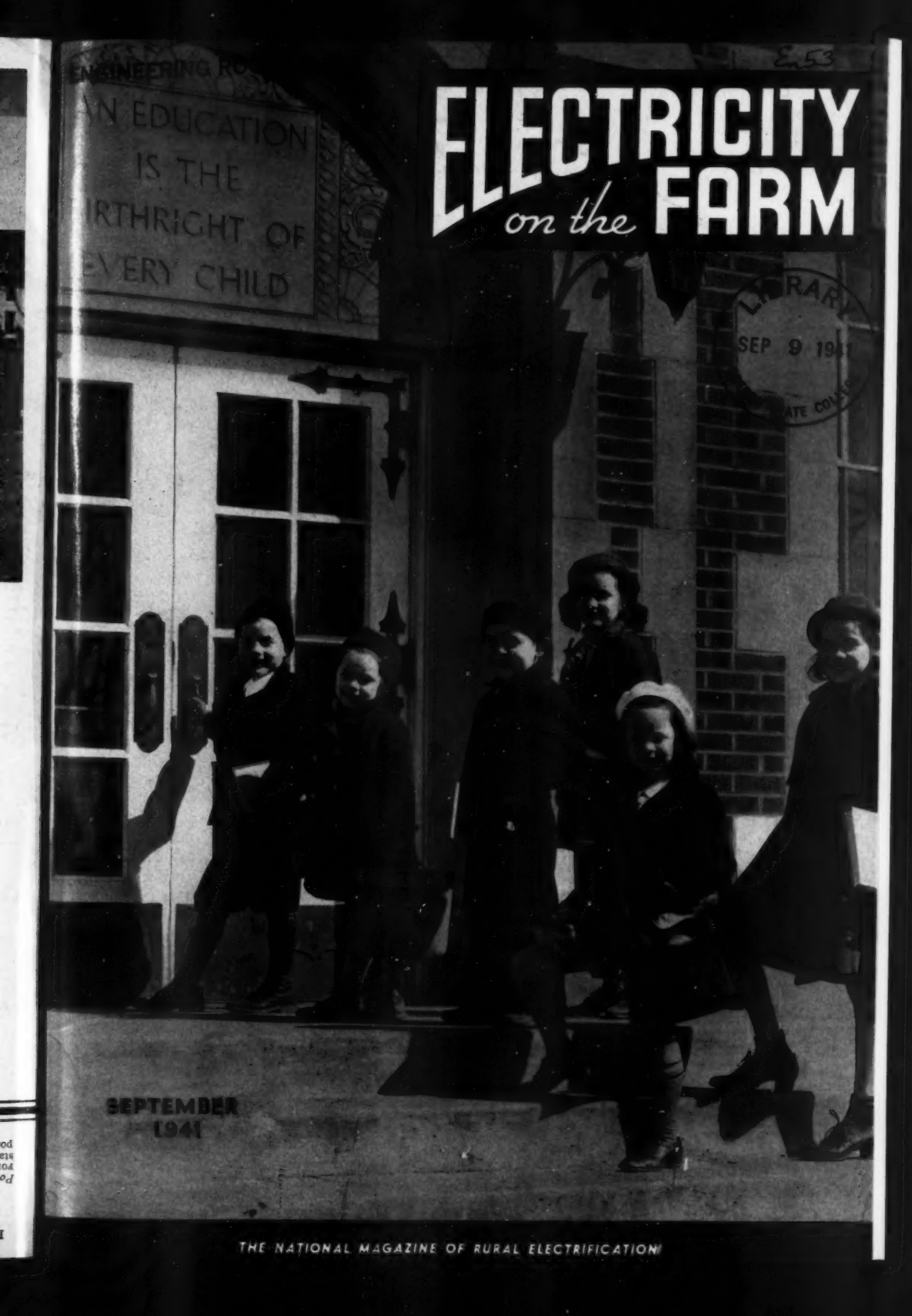
ELECTRICITY
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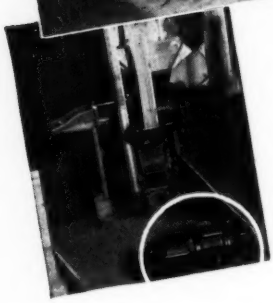
THE NATIONAL MAGAZINE OF RURAL ELECTRIFICATION



General Electric builds motors of various types and sizes for many applications. Convenient, portable apparatus (above) can simplify numerous operations such as grain elevating, hay cutting and blowing, threshing, etc. (Left) A sturdy, reliable G-E motor drives this feed grinder.

"I'm using ELECTRIC EQUIPMENT

"WHEN Andy left I soon found I couldn do all the work alone. But I al 'discovered' a number of places whe electric equipment could handle jobs for m So I rewired the barn, installed the necessar equipment, and now I'm doing as muc alone as the two of us did together. An flipping a switch is easier than wakin Andy."

Yes, with the proper electric equipment, lot of farm work becomes a matter of plug ging in, not lugging in—a mighty importan feature in these days of national emergenc *when manpower is scarce.* If you alread have electricity, your electrical dealer ca help you select and apply electric motors an other apparatus. If not, your electric ser ic headquarters will tell you how to go ab u getting it. In either case, be sure to send h coupon for copies of our two new bulle n on rural electrification and farm elec i equipment; you'll find them quite help i General Electric, Schenectady, N. Y.

General Electric, Sect. 980-2
Schenectady, N. Y.

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☐ "General Electric on the Farm"—A complete catalog of G-E equipment for farm use.

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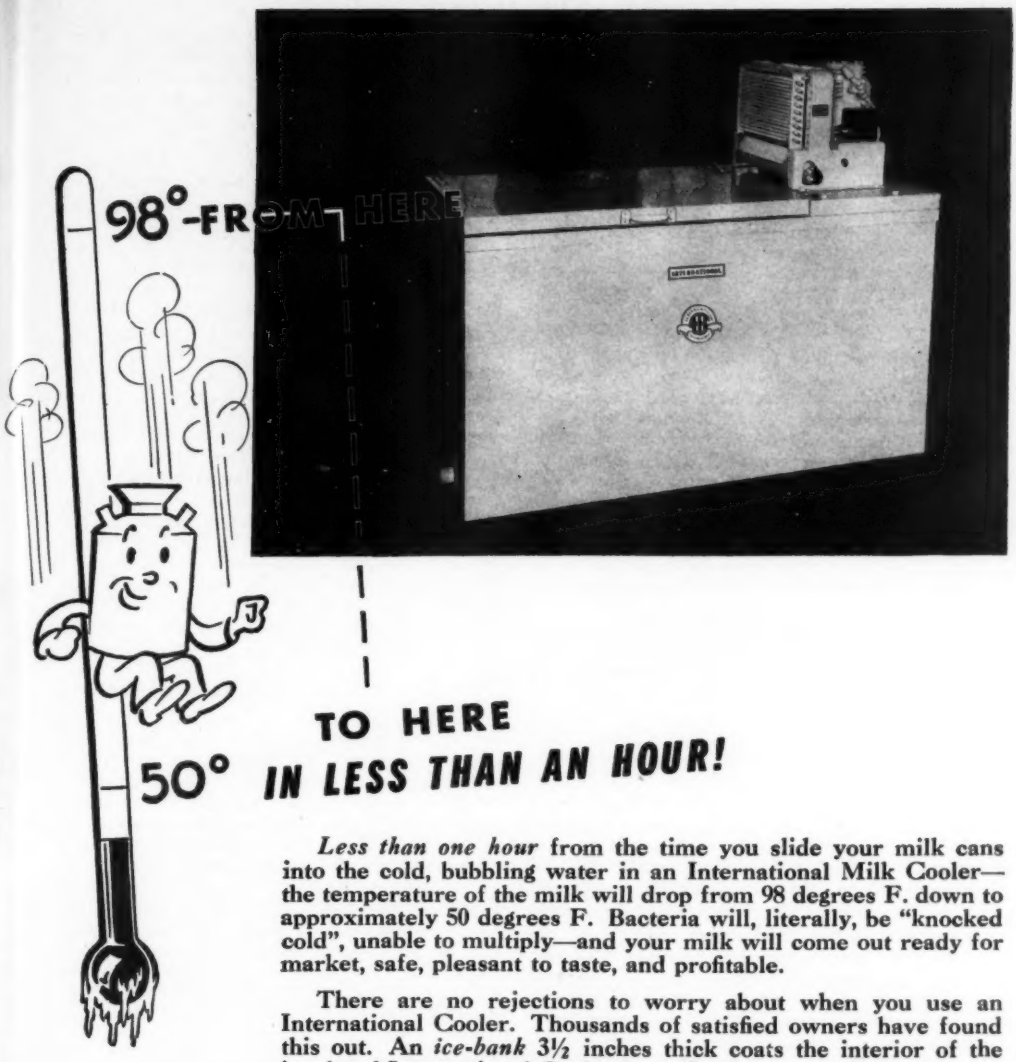

Less than one hour from the time you slide your milk cans into the cold, bubbling water in an International Milk Cooler—the temperature of the milk will drop from 98 degrees F. down to approximately 50 degrees F. Bacteria will, literally, be "knocked cold", unable to multiply—and your milk will come out ready for market, safe, pleasant to taste, and profitable.

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INTERNATIONAL HARVESTER COMPANY

180 North Michigan Avenue **Chicago, Illinois**

INTERNATIONAL MILK COOLERS

Editor's Chat

Defense Production

The Government is calling on farmers for increased production of certain crops, mainly milk, poultry and eggs, hogs and some vegetables. These products are wanted both for our own men in training and for shipment to Britain. It is not just a patriotic request, either. The Government has helped by establishing "parity" prices and giving guarantees to protect the farming industry from loss due to possible falling markets, after an expansion of the productive farm plant. Raw materials for essential farm equipment and repair parts have been given the highest civilian priority rating. In some localities boys needed for agricultural production and those enrolled in agricultural courses in colleges are eligible for deferred ratings in the draft. Prices of some farm products have been increasing steadily, and farm credit on liberal terms is available from Federal agencies.

Of course, the picture is not all rosy. It costs money to expand. Farm boys are now in the service, leaving some farms short-handed. In spite of priorities, some equipment can be obtained only after long delays. It is a time for careful planning, for purchasing only what gives reasonable assurance of conserving labor, increasing production, saving wastage or improving products. Intelligently selected, there are many such applications for electricity—running water, lights for chores and for egg production, milking machines, milk coolers, brooders for chicks and pigs, truck crop irrigation, and household equipment to give the farm woman more time to help outside.

Having experienced the collapse after one war, few farmers will be caught buying land at high prices. Intensifying production on present acreages by improved management and labor-saving methods would seem wise.

My Watch

I have a watch. It is a good watch of standard make. It has 15 jewels, a screw-back, gold-filled case that's tight, and an open, honest face. That is, it is mostly honest. I take good care of the watch, but after ticking away for a year or so it starts getting tired and slows down. Being an engineer, I keep setting up the regulator until I squeeze the "F" at the end of the scale. Then, not knowing how to feed vitamins to a watch, I take it to a shop and have the watchmaker give it a good old spring and wheel cathartic. Out in Oregon, Bill Koenig used to charge me $2.50 for the job; in Washington, where there are Senators and such, it cost $5; but in New York, where freight on watch medicine is high, it costs $7. Just now I'm one notch off the "F."

But what I really started to tell you was that I regulate that watch by our kitchen electric clock. The clock cost just the price of one Oregon watch cleaning. There's no regulator on it and it seems to get its vitamins B_1 and D from the juice in the electric wire. It does not tire and slow down. The first electric clock I owned cost 59c at a sale. It ran for about nine years with an occasional brushing of the bearings with a little coal oil. The bearings got to be oblong instead of round, but it still kept time. From shame at working 59c so hard, I bought a new one—self-starter, but no regulator. The secret of those electric clocks keeping time is that the regulator is at the power plant, and all the generators *must* be kept timed to the fraction of a second or they cannot work together in feeding electricity into the lines. Oh, for an electric watch!

Expensive Targets

There's a lot of fun in "plinking" with a 22 rifle. Kids even like to throw stones at a mark. I did. There are lots of targets and marks around most any farm. But somewhere, almost every day somebody uses a power line insulator or fuse as a target. The insulator may cost only 5c to 50c, but the replacing of it—the man's time, the truck, the gasoline will probably cost $5 or $10. At the same time someone who is baking a cake, brooding chicks, or milking the cows, may be without power. Breaking insulators is mostly due to thoughtlessness. Whether the insulator is on a private or coop line, the users eventually pay the bill. Teach Bill not to break insulators, and you'll save the bill.

Every time some man gets rich by putting across a new idea, he finds ten men who thought of it before he did. But they only thought!

George Kable

ELECTRICITY ON THE FARM
The National Magazine of Rural Electrification
CASE-SHEPPERD-MANN PUBLISHING CORP.
Editorial-Executive Offices: 24 W. 40th St., New York
SEPTEMBER, 1941 VOL. 14, NO. 9

GEORGE W. KABLE, *Editor;* KARL M. MANN, *President;* FRED SHEPPERD, *Editorial Director;* I. H. CASE, *Vice-Pres. and Gen'l Mgr.;* K. H. GORHAM, *Advertising Manager;* H. S. ESSEX, *Production Manager.* CHICAGO: 6 No. Michigan Ave.—W. S. CLEVENGER, *Western Manager;* L. M. ROCHE, *Western Representative.* SAN FRANCISCO: 444 Market St., Room 305—C. H. WOOLEY. Subscription price: 75 cents per year; single copies, 10 cents. Special bulk rates on application. *Contents Copyrighted 1941 by Case-Shepperd-Mann Pub. Corp.*

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What Electricity Means to Me*

By MRS. O. E. PATTISON

IT takes an ice storm to make one realize what electricity means. During the one we had recently we resorted to primitive means of cooking, getting down on hands and knees to manipulate pot and pan onto the furnace. This done, we ate with good appetite, and I thought, "Now for a good long evening with a magazine." One look at the feeble light of the coal-oil lamp changed my mind. Well, this would be a good evening for listening to the radio; but no, we couldn't do that, for there was no electricity. "Might as well clean house." Couldn't though. No current for the vacuum cleaner. Why not a bath and to bed. The water heater was off—no cold bath for me in this weather. There was one thing we could do without electricity: we could go to bed! And we did.

Electricity Makes a Difference

How would *you* like to be without electricity all the time? The other day I answered that question to myself. My husband was buying sheep and we came to a substantial looking farmhouse, but I found myself asking, "Wouldn't you hate to live here?" and my husband answered definitely in the affirmative, which set me to analyzing why we felt that way. The house was as good as our own, there was an abundance of water, and large barns surrounded by stacks of feed gave evidence of prosperity. What, then, made the difference? Just one thing. There was no electricity.

There are definite reasons why I want electricity. First of all, it means to me a healthy baby. Let the baby stand for the family.

When I was born and my mother could not nurse me everyone said, "She will die." When my baby came and I could not nurse him not one word of pessimism came to my ears, I had the equipment to take care of him properly. Everything was boiled—food bottles, utensils, clothing, bedding, playthings. The electric range furnished the heat. Then all food (and incidentally bottles and utensils) was refrigerated to prevent activity of bacteria.

To help in the matter of cleanliness I had an abundance of hot water kept at a constant temperature by electricity. Often several baths a day were necessary. Nor is bathing confined to the baby, for school youngsters get to smelling like human beings if not bathed very frequently. And what could be nicer when men come in dusty and greasy, from mechanized farming than a good hot bath?

The second thing that electricity means to me, then is cleanliness. Clean and orderly surroundings make a woman good company when "hubby" comes in from work. In my house there is no smoke, soot or mess because my heating units, refrigerating unit and cleaning equipment make none. They are run by electricity. There are no clogged corners or inaccessible spaces under built-in fixtures. The vacuum cleaner reaches them. There are no grimy floors. The same machine furnishes the hot water, the washer cleans and even repaints or varnishes them. The walls are freed from dust in the same way, and even washed a time or two each year.

And as for laundry, it is no longer a depressing heap of dirty clothes. The water heater supplies the "elbow grease" and the ironer takes care of the wrinkles.

Moreover, I am never afraid of being without all the water I want to keep clean with. An electric pump sees to that. It also assures me of water for trees, grass and a garden. For cleanliness, then, electricity has all the answers.

Is there any work that, to you, is so distasteful that you fairly have to put a clothes pin on your nose "to take it," as it were? To me there is; therefore, the third thing that electricity means to me is the easy accomplishment of distasteful work.

Take ironing, for instance. It has always been so slow, and in the summertime so hot. Now I have an ironer. I sit to operate it, control it with my knee and have my hands free to handle the clothes. In three hours time I can do a bushel basket (heaped up) of starched clothes. There is no work to it.

Then there is sweeping. Dust has the effect of making me sneeze. I hate sweeping, and especially in hay fever time. Electricity has come to my aid here too. I dust and sweep both with the vacuum and don't have a third of my dirt retained on walls, curtains, bedspreads and cracks, for no dust is stirred up. Moreover, it is done quickly.

Another task is canning. It isn't distasteful, but it is a long and tedious job. The keynote, of course, is sterilization. Jars, food, utensils—all are sterilized; therefore, plenty of hot water and a steady heat are the essentials. Electricity furnishes the energy for both. It does so, moreover, at a nominal cost. Last year I canned over three hundred quarts of food. For that one month the bill was up one dollar. My husband said it was due to colder weather and the water heater burning more, I said it was canning. If I was right fuel costs were one dollar; if he was right the costs were nothing at all!

TIME in capital letters is the fourth thing that electricity means to me. In a household of eight people (exclusive of hired help), this element looms large. Permit me to quote a few figures which are approximate yet conservative. These are:

*Talk given at Annual Meeting of Members of Farmers Electric Cooperative, Inc., Clovis, New Mexico.

1. 7,000 garments washed and boiled for the baby.
2. 15,000 garments laundered for other members of the family.
3. 1,620 meals for the baby.
4. 8,733 meals for other members of the family.
5. 270 meals for hired men.
6. 33,000 dishes for family.
7. 1,900 dishes for baby.

Add to these the canning listed above, and consider that these are only a few of the household tasks. Sewing, mending, gardening and one thousand and one odd jobs are major time consumers. Electricity, then, equals to Time.

Last of all there is fun in having electric energy work for you. All work and no play makes Jack a dull boy, Jill a dull girl, the housewife a dull woman. Yet her fun has to be gotten from her work and surroundings, for she has little leisure.

A large slice of my fun comes from seeing how many pieces of electric equipment I can use in trying a new cake recipe, refrigerator cookies or a brand-new idea in rolls. There is always the mixers, range, refrigerator and water-heater involved, and sometimes various attachments for these.

Too, there is fun in blowing the dust out of the piano or seeing if the hose will pick up that spider that is trying to escape across the ceiling!

And then of course there is the radio supplying music, plays or lectures as you work. Fun? Yes, plenty of it right in my own house while I work.

To conclude, I have ten pieces of electric equipment, and want a dozen or so more. That would put me near the housewife's millennium.

Unusual Uses for Electricity

The following statements from readers are in answer to the request: Describe briefly the most unusual or uncommon application of electricity on your farm.

• "Shower bath at barn for colored labor."—Mrs M. S. Pearson, R. F. D. #1, Beatrice, Alabama.

• "An electric motor that draws water from well with endless rope by means of pulleys."—W. L. Britt, R. F. D. #2, Lineville, Ala.

• "Our vacuum cleaner for a hair dryer."—Mrs. B. L. Wolfe, Whistler, Alabama.

• "Am raising six pheasants in a box brooder, warmed by an electric light."—Mrs. F. E. McLaughlin, R. F. D. #2, Box 245, Chowchilla, Calif.

• "An automatic egg cleaner that cleans 8 eggs a minute, and saves about $1 a day in eggs and time."—Harry Clifton, R. 2, Box 625, San Diego, Calif.

• "An electric light above a pan of oil to catch moths."—Mrs. Charles E. Peret, R. F. D. #1, Caldwell, Idaho.

• "We put two wires close together near the ground, hook the electric fence on the top one, ground the other, and keep the chickens out of the yard."—Mrs. E. E. Boston, R. F. D. #2, Parma, Idaho.

• "I use my electric fan outside my screen doors to keep flies and mosquitoes away."—A. D. Miller, St. Anthony, Idaho.

• "Our electric hog mash mixer is run by a ¾ h.p. motor. It mixes from 75 to 125 lbs. per minute. We have made this mixer ourselves and the only cost was the motor. The mixer was made of an old washtub bolted on an iron frame and a paddle welded in the center of the tub."—Billy Tullis, R. F. D. #1, Ancona, Ill.

• "We clip, clean and deodorize our collie dog and dust the cat with electricity."—V. X. Smiley, P. O. Box 385, Dixon, Illinois.

• "My husband fixed a place for two electric light bulbs on the underside of our old kerosene brooder hover and it worked fine."—Mrs. Ray Meyer, 227 Hollis St., Kewanee, Illinois.

(Many other improvised homemade brooders, Editor.)

• "Tire pump hooked up with a motor."—Miss Mary Brummel, R. F. D. #2, Naperville, Illinois.

• "An electric bell in the barn that rings when I push a button in my kitchen. 1 ring for meals, 2 rings for telephone calls."—Mrs. Ervin Ranstead, R. F. D. #3, Bremen, Indiana.

• "Saved your chickens which were almost drowned, with a radiating bowl type electric heater."—Mrs. W. M. Higgs, R. F. D. #1, Brookville, Ind.

• "With the long hose on my electric sweeper I draw the lamp bugs from ceiling and from around the light bulbs at night."—Nadine Chubb, R. F. D. # 3, Baxter Springs, Kans.

• "We hang our electric bathroom heater in the barn over the pig pen to save winter litters of pigs."—Maurice A. Malbon, R. F. D. #1, Skowhegan, Maine.

• "After sugaring is over we find it very helpful to wash our 1600 sap buckets by electricity. One of my sons fixed up an arrangement made of wood, and covered with clean cloth, making a swablike appearance. This is turned by a small electric motor, and by holding the bucket with heavy gloves, it washes satisfactorily."—C. N. Trow, Buckland, Mass.

• "A 100 watt bulb on the lawn to keep bugs away from porch."—Mrs. W. W. Frazier, R. F. D. #2, Goodman, Mo.

• "I use the vacuum cleaner to catch the down when I clean ducks in the Fall."—Mrs. Herman Appleby, R. F. D. #2, Arlington, Nebr.

• "I am using an electric motor to turn stationary bike to exercise my paralyzed legs."—Pete Ivarsen, Blair, Nebr.

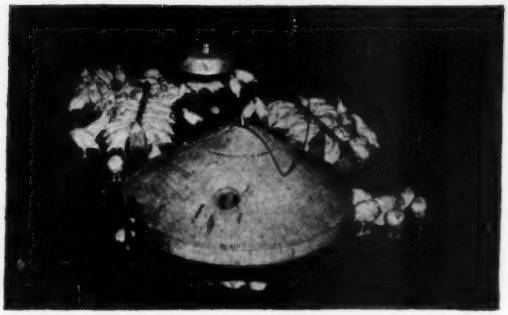
• "I have used the vacuum to fill new pillows drawing them from a feather mattress."—Mrs. H. S. Townsend, Box 432, Lebanon, N. H. Also Mrs. R. C. Henthorn, R. F. D. #1, Alexandria, Ohio.

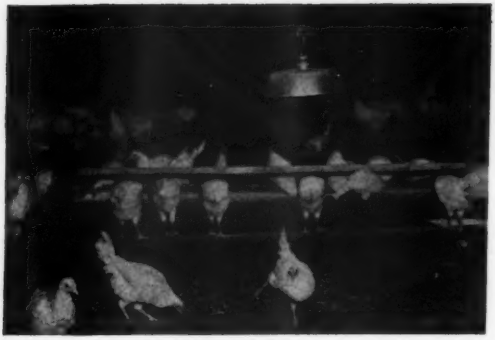
• "It is an automatic chicken feeder controlled by an alarm clock."—Luther Genuit, R. F. D. #3, Napoleon, Ohio.

• "Apparatus used on the milk can that tells us when the can is full by ringing a bell."—Mrs. Robert Wideman, R. F. D. #5, Medina, Ohio.

Ultra Violet vs. Cod Liver Oil

By **D. C. KENNARD,**
in Charge of Poultry Investigations, Ohio Experiment Station, Wooster, O.





▲ This is an assembled S-4 unit. It is hung 30 inches above the floor. RS-4 lamps are now available which require no reflectors. Lamps have an estimated life of 1,000 hours use.

◀ One sunlamp will effectively serve 200 chicks during the first twelve weeks of growth or 100 laying hens. One hour daily exposure has proved adequate for growing chickens.

THE discovery of the function of sunlight and the intelligent use of vitamin D supplements in the growth of chickens, and for egg production and hatchability of eggs, has revolutionized poultry feeding and management during the past 20 years. Previous to this discovery, the many attempts to raise chickens indoors, to confine layers indoors, or produce out-of-season hatching eggs, invariably failed.

The discovery of vitamin D and its uses for poultry was soon followed by many new and important accomplishments. These included all-year production of hatchable eggs, all-year brooding, all-year broiler production, and a more uniform egg production throughout the year from fall- and winter-hatched pullets. Obviously, these accomplishments were the very fundamentals for commercial poultry and egg production.

Fish oils and feeding oils have been the principal means of providing vitamin D for poultry aside from natural sunlight. Recently a new S-4 Mazda sunlamp to provide the vitamin D factor (or should we say, artificial sunshine) has become available. Experiments were begun with the S-4 sunlamp by the Ohio Agricultural Experiment Station in April, 1939. They have since been in progress on an extensive scale, with studies on the growth of chickens and turkeys, egg production, and hatchability of chicken eggs.

In these experiments, the S-4 Mazda sunlamps were suspended 30 inches above the floor and over the mash feeders. The top edge of the mash feeders for layers was 14 inches above the floor and the hens, when eating, stood on a 2 by 2-inch pole 8 inches above the floor. Since a large area of the pen is exposed to the rays from the sunlamp, the layers also receive considerable exposure in addition to the exposure received when they are eating.

Station Conducts Experiments

The first report of this work was published in the Station's Bimonthly Bulletin for November-December, 1940. In the six experiments reported, which included spring and fall hatches of chickens during 2 years, the S-4 sunlamp proved an effective means of providing the vitamin D factor for the growth of chickens. Likewise, in the experiments with the growth of turkeys, both the sunlamp and the cod-liver oil provided ample vitamin D to meet the indoor requirements of turkeys.

The experiments with egg production and hatchability of eggs were conducted with White Leghorn and Rhode Island Red pullets. During the 9 months' experiment, both the Leghorns and the Rhode Island Reds, which received exposure to sunlamps, laid more eggs than the cod-liver oil groups. There was no significant difference in the body weights of the layers. The average percentage of hatchability of both the Leghorn and Rhode Island Red eggs was about 5 per cent higher in the sunlamp groups than in the cod-liver oil groups. In a later experiment, however, the percentage of hatchability of Leghorn eggs from the sunlamp and cod-liver oil groups was much the same.

In our experiments, the sunlamps were used for 1-, 2-, and 4-hour periods during the forenoon. In the growth of September-hatched Leghorns to maturity indoors during the fall and winter when the vitamin D requirement was the most exacting, the 1-hour daily exposure to the sunlamp appeared adequate. In fact these pullets, which had previously received the 1-hour daily exposure, have shown no signs of any deficiency of vitamin D after 4 months of heavy egg production (65 to 70 per cent). It appears that the 1-hour daily exposure to the S-4 sunlamp was adequate to meet the fall and winter growth requirements for Leghorns. Moreover, experiments with Leghorn layers thus far indicate that the 1-hour daily exposure may be sufficient for heavy spring- and summer-egg production. Whether 1-hour daily exposure will be adequate for heavy egg production for longer periods of time or for heavy egg production during the fall and winter months, remains to be determined.

The Vitamin A Problem

Thus far in this discussion the sole consideration of feeding oils has been as a source of vitamin D, whereas these oils are among the best sources of vitamin A. During the winter

months or when chickens are confined indoors, their vitamin A requirements are generally provided by alfalfa meal or leaf meal, (preferable dehydrated), yellow corn, fish oils, or succulent green feeds. Sunlamps do not provide vitamin A.

When the feeding oil is omitted from the ration and substituted by sunlamps, a highly potent source of vitamin A is omitted. Adequate vitamin A must be provided from other sources.

In the Station's experiments, sunlamps were used in place of the cod-liver oil with no other supplemental source of vitamin A. Since no indications of a vitamin A deficiency were observed, it appears that the regular rations, which contained high-quality alfalfa leaf meal (dehydrated) and yellow corn, were adequate. Had a lower quality or a smaller amount of alfalfa meal or leaf meal been used we might have had a deficiency of vitamin A with its attendant ills, and the favorable results from the sunlamps in these experiments might not have been secured.

In light of the experimental evidence that comparable results can be expected in the growth of chickens and turkeys, in egg production, and in hatchability of eggs from the use of either S-4 sunlamps (with a ration adequately fortified with vitamin A), or vitamin D oils, the next logical question is: "How do the costs of operating the sunlamps compare with those of using vitamin D oils?"

The cost of operating sunlamps includes the cost of wiring, cost of electricity, original cost of the sunlamp, and renewal of S-4 bulbs. The cost per bird depends on the number of birds served by each lamp.

All the parts for making a complete S-4 Sunlamp are now available at a cost of about $16.20 Some assembled units have been offered for considerably less than this amount. Renewal bulbs may be obtained from manufacturers' authorized dealers at the list price of $8.50 *less 20 per cent* or $6.80. Ask for the discount. It is authorized on all lamp purchases aggregating $5 or more.

Cost Comparison of S-4 Type Sunlamps and Vitamin D Oil

If we assume the bulb will give the 1,000 hours of service for which it is rated, the cost of bulb renewals would be 0.68 cent per hour. Since the other parts of the lamp have a minimum of operating depreciation, it may be assumed that these parts will serve for 5,000 hours or longer at a cost of 0.15 cent an hour, which would make a total cost of 0.83 cent an hour for use of the sunlamp itself.

The cost of electricity for operating the 120 watt sunlamp unit at varying rates per kilowatt hour and the other costs per hour follow:

S-4 Sunlamp Operating Costs with Different Rates for Electricity

Cost of electricity per kilowatt hour cents	Cost of electricity 120 watts* per hour cents	Cost of S-4 Type sunlamp per hour Bulb renewals cents	Transformer, reflector, etc. cents	Total operating costs per hour cents
2	0.24	0.68	0.15	1.07
3	.36	.68	.15	1.19
4	.48	.68	.15	1.31
5	.60	.68	.15	1.43
6	.72	.68	.15	1.55

*Transformer, 20 watts; S-4 bulb, 100 watts.

If 3 cents a kilowatt hour is taken as a representative rate for calculation purposes, the total cost of operating a 120 watt S-4 sunlamp unit is 1.19 cents per hour. This is the total cost figure used in the calculations to follow.

The current prices of vitamin D feeding oils are taken as 20 cents a pound or $1.50 a gallon for the regular oil carrying 85 AOAC chick units of vitamin D per gram, and 50 cents a pound for the fortified oil carrying 400 AOAC chick units vitamin D per gram.

In the Station's experiments, one sunlamp was used for 250 chicks, 125 growing pullets, 30 turkeys, or 80 layers. Under more practical conditions, it is reasonable to assume that one sunlamp will effectively serve 200 chickens during the first 12 weeks or 100 layers.

Cost Calculations

The cost of operating the sunlamp 1 hour daily during 12 weeks for the growth of 200 chickens to market broiler size is 84 hours at 1.19 cents per hour or $1.00. The American breeds require around 10 pounds of feed per bird during the first 12 weeks, and therefore, 200 chickens would consume about 2,000 pounds. This would require ½ per cent, or 10 pounds of 85 AOAC chick unit vitamin D oil which, at 20 cents a pound, would amount to $2.00. Or if 400 D fortified oil were used, the amount would be 2.1 pounds which, at 50 cents a pound, is $1.05 or much the same as for the calculated cost of operating the sunlamp.

While 1-hour daily exposure may prove adequate for layers, let us assume for calculation purposes at this time that 2 hours is necessary. The operation of a sunlamp 2 hours daily to serve 100 layers for a year would be 730 hours at 1.19 cents an hour or a total cost of $8.69. These layers confined indoors would consume about 7,500 pounds of feed which would require 1 per cent or 75 pounds of the 85 D oil at 20 cents a pound or $15. Or if the 400 D fortified oil were used at a rate to supply the same number of AOAC units per ton, the amount would be about 16 pounds which, at 50 cents a pound, would amount to $8.00 or 69 cents less than the calculated cost of operating the sunlamp.

These calculations are presented as methods of calculation rather than as actual cost figures. Your local costs should be used for making comparisons. It would seem, however, that with present prices there would be little difference in the cost of operating S-4 Type sunlamps or the use of fortified (400 AOAC chick units per gram) vitamin D feeding oil. Moreover, it appears from the experimental exidence secured by the Ohio Agricultural Experiment Station, that equally satisfactory results may be secured from the use of S-4 sunlamps or vitamin D feeding oils for growth of chickens, egg production, and hatchability of eggs.

Note. To get the full ultra-violet effectiveness of S-4 lamps, they must be operated at their rated voltage. They should not be used on long runs of No. 14 wire or on overloaded wiring circuits. Editor.

Oh, Boy! It's Great! Shower baths may be installed over a tub or in a separate compartment which may be built-in or may be purchased as a complete unit for use in improvised bathrooms, washrooms, milkrooms or wherever space and water is available and a drain can be installed.

Tennessee 4-H Electric Clubs Learn by Doing

By W. J. R. BROWDER, Extension Specialist in Rural Electrification

"This is the most interesting and useful club work I've ever done," said Reeford Arnold of Rhea County. "Can we meet once each week, instead of once a month?" piped up David Martin of Cumberland County. "Isn't there an advanced course for us to study?" asked Ed Campbell of Hamilton County. "We want more" was the combined expression of 286 boys enrolled by the Tennessee Agricultural Extension Service in fourteen 4-H Electric Clubs in thirteen counties during 1940.

County Agents organized the clubs. Each club had about twenty boys who had successfully completed two years of regular 4-H club work and expressed a desire to add electricity to their club projects. The agents found it difficult to keep the enrollment within a reasonable number, and after the clubs started other 4-H boys in every county asked to enter.

The Clubs were organized for the purpose of studying farm wiring problems and some of the general applications of electricity in the home and on the farm. A text "Rural Electrification Lessons for Boys' Groups", was prepared for the use of the Clubs. Each club met one-half day every four weeks and studied one or two lessons as outlined in the text. Eight meetings usually completed the course.

Specialists Help Boys

The State rural electrification specialists met with the County Agents and assisted the boys with special work in their homes or on the farms, and the following wiring and equipment was planned and installed:—

11 wall switches, 2 sets of 3-way switches, 13 convenience outlets, 14 ceiling lights, 5 yard lights, 8 home-made chicken brooders, 2 service entrances, 2 home-made pig brooders, 1 hotbed, 1 work-shop wired, and 2 poultry houses wired.

In addition to the project work, the boys made the following installations outside their regular organized meetings:

9 ceiling lights, 17 wall switches, 3 sets of 3-way switches, 33 convenience outlets, 2 drop lights, 1 light fixture improved, 1 room wired, 4 changes made in wiring, 9 yard lights, 5 electric pumps wired, 7 poultry houses wired, 4 Christmas lights in homes, 3 Christmas lights in churches, and 1 school bell wired.

▲ Clyde Maddus of Crossville installing a light switch.

▲ A yardlight being put up in the peak of the roof by Jimmy Flynn and a helper behind the light.

Four Club boys, nearly twenty years of age, have applied for licenses and are now licensed electricians.

The State Department of Game Conservation gave two club boys in Tipton County some young quail to brood and turn loose on their farms. The boys did the brooding with an electric quail brooder of their own making.

Mr. and Mrs. S. F. Conner of Rhea County, acted as hosts to two Electric Clubs at the Conner's Electrical Demonstration Farm for a half day. Each boy selected an electrical appliance and studied it for one hour. Then the group assembled and listened to each boy give his report on "The Selection, Installation and Operation" of one of the thirty appliances on the farm.

Marvin Jackson won the contest with his report on a portable electric motor. His prize was the pig brooder made by the boys at one of their regular meetings.

County Agents in Tennessee requested the organization of over ninety 4-H Electric Clubs during 1941.

▶ This group of 4-H boys is getting some first hand information about an electric hotbed which is becoming popular in garden sections of the South.

Here's a load of seed just picked from the field. The hybrid strains show unusual uniformity, higher yields, greater resistance to drought and other desirable characteristics.

Electricity Makes Jobs for Farm Boys

By JEROME J. HENRY

EACH year, three out of every five farm boys are "pushed off" the land—that is, for every five boys who reach 18 years of age, there are only two farms that fall vacant through death or retirement of older farmers.

The boys can't clear more land, and open up new farms as their grandfathers did. They can't move West and homestead as their fathers did. They may want to stay on the farm, but the land simply will not support so many, so off they go to the cities to try to find work.

The reason the Henry boys of Dane County, Wisconsin, didn't follow this pattern can be found in the slim dark lines that run up from the highway, bringing power to produce and process specialized crops.

I was born on a 130 acre farm in southern Wisconsin. As farms go, it's a small place, and its usefulness dwindles as one considers that only 80 or 90 acres are good crop-producers. I was the first of four sons in our family and I finished college before the real depression came along. The three boys left on the place with my father wanted to stay there but it seemed an impossibility. They could not buy more land at a reasonable price.

They were faced with a problem that confronts rural youth all over the country. The home place could support one who could have taken over for my father. Two more would have had to leave if they had not found a way to increase their productive capacity and income through the use of modern equipment.

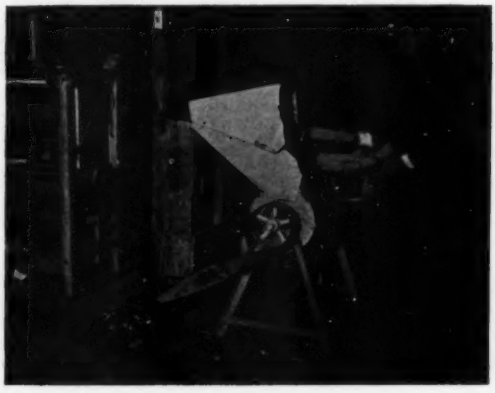
Mr. Henry has for many years written the column "On the Air." He's one of our family.

So they started producing special things with the aid of electricity—growing premium quality products. They took care of the whole job from the field production to the consumer. And they have made reasonably remunerative jobs for themselves.

One of the boys began raising turkeys on a small scale. He developed retail markets and markets for breeding stock, while increasing his flocks. Each year he increased the number raised, and promoted sales with various kinds of advertising. Early in the game he reached a point where power was necessary to do the work. The farm had been equipped with its own electric plant in 1924, but that did not furnish sufficient power. The local power company was asked to build a line to the farm, a quarter of a mile off the highway. With that power, the production of poultry was stepped up. Today the farm is producing from 2,000 to 3,000 birds a year.

Perhaps the most important poultry equipment is the electric hatcher which enables the boys to hatch their own stock efficiently, and to do some profitable custom hatching. But the electric current goes on: it lights the brooder houses; it

Electric heaters keep a special wax at the right temperature. The birds are dipped and the pin feathers stripped off with the hardened wax, making market birds "clean as a whistle."



The seed is dried with electric-driven fans that circulate air through bins. Then the ears are shelled and the seed elevated up to the grading machine. This is Ray Henry feeding the sheller some average ears of hybrid seed.

broods the poults; it furnishes power to scald and wax the turkeys for picking. Top quality birds are furnished to restaurants, fancy meat markets, and individual customers in nearby towns and cities.

That's one speciality, and more than one full time job that electricity helped to create. The farm still does not grow enough feed for the livestock and poultry, but the fertility of the soil is being built up which makes it possible to grow another special crop.

Over a period of years one of the Henry boys studied hybrid corn, and began growing seed on a small scale. He developed his markets carefully from year to year until he had to grow more seed than he could handle without the help of labor-saving machinery.

Electricity and Seed Corn

That's where electricity came to the aid of a good-sized hybrid seed corn business. The boys now produce and market several thousands of bushels of seed each year. The job has grown automatically to a point where they can afford to rent land to increase corn seed production. And instead of worrying about keeping a job on the farm they now have to hire labor at various seasons of the year.

Electricity does many things in connection with hybrid seed production and processing. As soon as the corn is picked it is placed in a special seed corn dryer. A large circulating fan driven by a 5 horse power motor drives warm air through the bins quickly to get the moisture content down. Then the corn is shelled with an electric motor driven sheller, elevated to a bin with electric power, and graded with a complicated machine, electrically driven, which sorts the kernels according to sizes and shapes, into a half dozen or more grades.

With the aid of electricity, three boys, one of whom is still in college, but who hopes to go into the farming partnership, have found jobs for themselves—more than three full time jobs in fact—on a place that normally would be none too big for one man. They have an excellent purebred herd of hogs, a dairy herd in an electrically equipped barn, and they are producing turkeys, poultry and meat chickens and hybrid seed corn on a large scale. To help produce their various crops, extra labor has to be hired to help detassel the rows of hybrid corn, to help prepare birds for market, to deliver birds to customers, and to assist with the selling of seed and turkeys. They help other business by buying advertising space, feeds, and equipment.

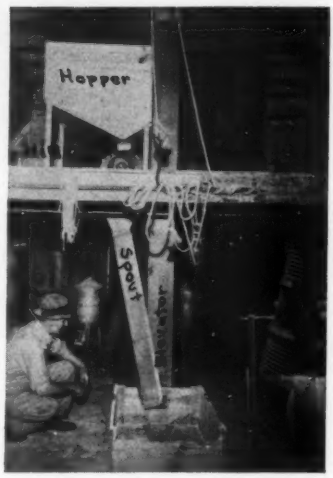
Half Horsepower Hammer Mill Saves $10.94 per Month

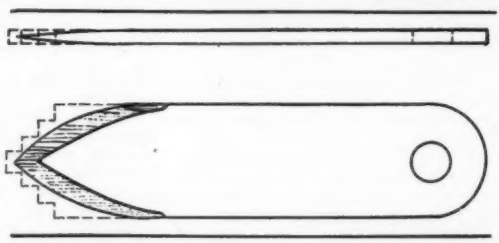
By **VIRGIL MARVIN**, Agricultural Engineer, Toledo Edison Co., Wauseon, O.

MR. Harvey Moll, who owns and operates Moll's Single Comb White Leghorn Breeding Farm near Wauseon, Ohio, was confronted with the problem of reducing the cost of feeding cracked corn to 4000 chickens. Mr. Moll, not being able to produce all the corn necessary for his feeding, was required to buy both shelled corn and cracked corn. The cracked corn cost him 30 cents per hundred pounds more than the shelled corn.

In cooperation with the rural representative of the power company, Mr. Moll experimented with a ½ hp. hammer mill equipped with a ½ inch screen. A very good job of cracking was done but there was too large a proportion of meal to the cracked corn. After much thought Mr. Moll expressed the idea that if the hammers were sharpened, like a knife blade, there would be less meal produced due to more "cutting" and less "hammering" of the kernel. With the cooperation of the mill manufacturer a set of hammers were made into "knives." The accompanying drawing shows the original hammer in broken lines, and the hammer after being ground down.

Upon trying the new type knife edged hammers it was found that the percentage of meal was greatly reduced. On actual test of 100 pounds of shelled corn, the mill equipped with the original hammers produced 75 pounds cracked corn and 24 pounds of meal. With the knife edge hammers the result was 84½





Top: View of the two-story grinding set-up. Mill and 500-lb. hopper on second floor. Spout from mill discharging into boot of elevator on first floor. **Center:** Sharpened hammer. Broken lines show shape of hammer before it was sharpened. **Lower:** Top floor showing elevator legs and motor, and the means for screening the cracked corn into bins.

pounds cracked corn and 15½ pounds of meal, a reduction of 35% of meal. The tests were made using a ½ inch screen in the mill, and a wire screen with 8 meshes to the inch to separate the cracked corn from the meal. After several months of use the hammers are still sharp and in good condition.

An accompanying picture shows the mill with its 500 pound hopper. The mill and its hopper are installed on the second floor. The cracked corn descends by gravity through a pipe to the hopper of a grain elevator. It is then elevated and discharged over the separating screen. The cracked corn drops into the cracked corn bin and the meal into the meal bin. The mill, with a ½ inch screen, cracks approximately 600 pounds of shelled corn per hour. It uses 2 kw-hr in cracking 2000 pounds of shelled corn.

Investment Not Large

The total investment in the mill and the hopper is less than $90. Figuring 10 years of life for the equipment, the annual depreciation cost is $9, or 75¢ per month. Two tons of corn are cracked per month. The total cost per ton for cracking them is 37½c. depreciation plus 11½c interest (6% on one-half of investment) plus 4c for electricity or a total of 53c. Since cracked corn from the mill cost an extra 30c per hundred, or $6 per ton, the cash saving is $6 less 53c or $5.47 per ton—$10.94 per month.

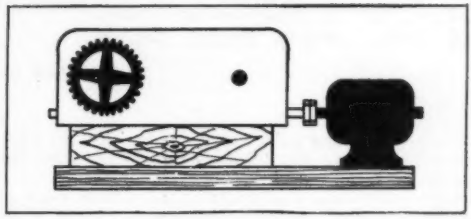
On a tour of Mr. Moll's farm one can readily see the major part that electricity plays in the operation of a modern poultry farm. There are electric incubators; electric brooders (battery and hover types); incandescent and ultra-violet poultry lights; automatic drinking fountains supplied by an electrically operated pump; and electric poultry water warmers for the winter months. In the granary there is an electric motor driven elevator, corn sheller, and mill. Besides the above, there are labor savers such as emery wheel, soldering iron, etc. In their home practically everything is electrical from the furnace control to the electric twins of the kitchen—the range and refrigerator.

Does electricity pay? Ask the Molls.

Correction

In the caption under the lighted shop picture in the August issue, page 11, the incandescent bulb was 100 watts—not 1000 watts as printed.—Ed.

Handy Speed Reducer



In order to use a motor on some of our hand operated equipment which will not stand high speeds, we have improvised a handy speed reducer.

We purchased from a local junk yard a reducing gear from an old Thor washing machine. It cost 25c. It reduces the motor speed of 1725 rpm to a suitable turning speed of 45 to 50 rpm. The gear is so built that the motor drives it directly through a flexible coupling which can be bought new for 35c. Our one-third horsepower split-phase motor with built-in thermal switch was mounted along side the gear reducer on a heavy plank 9 in. by 25 in. It is essential that both motor and reducer be fastened to the plank very rigidly or they will twist out of alignment in use.

This unit is easily carried about and is used to drive a grindstone, sausage grinder, cream separator and corn sheller. Sprockets and chains from old farm machines are used for the drive from the gearbox to the machine. At slow speeds the chain was found to be more satisfactory than belts, and cheaper, because we had them on old machines. We have a variety of sizes for different speeds, and the chain is easy to shorten or lengthen.

ALTA JOHNSON,
RR 2, Farmland, Ind.

Professor E. E. Brackett (left), Head of Department of Agricultural Engineering, University of Nebraska and President of the American Society of Agricultural Engineers, passing the gavel to the new President, Geo. W. Kable, Editor of ELECTRICITY ON THE FARM at the annual meeting of the Society in Knoxville, Tenn.

The ASAE, organized in 1911, now has about 1300 members in all parts of the United States, Canada, and a number of foreign countries. Its members are engineers who apply their training to the problems of agriculture—tractors, power, farm machinery, use of electricity, irrigation, drainage, soil conservation, farm buildings and other structures, and the teaching of these subjects in schools and colleges. The membership includes a number of farmers and farm managers as members or affiliates.

Broiler Project Pays

F. F. A. Student Uses Electric Brooder and Makes Money Raising Broilers

By **HOWARD CLAPPER**

Many is the time we've heard experienced farmers say, "There's no money in raising poultry," of "If you keep track of the feed you come out in the hole." Carroll Throckmorton F. F. A. student at the Sparta High School accepted these statements as sort of a challenge and decided to find out for himself whether or not there was any money to be made raising broilers. With the pep and enthusiasm of the typical Future Farmer of America, Carroll set up his project.

On the 2nd of last October he bought 300 White Rock Chicks; total cost $25.50. The chicks were brooded with his father's electric brooder. By the middle of November they were fully feathered and entirely weaned from heat. The electricity used during the six weeks brooding period cost $7.41 or about 2½ cents per chick.

Feed costs are given in Table 1.

Carroll and his Vocational Instructor, Mr. L. O. Walker are both well pleased with the outcome of the project. Mr. Walker is especially enthusiastic about the electric brooder. He says that the success of a broiler project depends largely on the chicks getting started properly, and in his opinion electricity is far in advance of any other method. It's clean, automatically controlled heat, keeps chicks healthy, and brooding in a cold room promotes early feathering and rapid growth. And Carroll, — well when anyone tells him that there's no money in raising broilers, he's got an answer. Got it down in black and white, $59.31 profit from one brood of 300 chicks.

Table 1. Feed Costs

Growing Mash—700#.....	$17.55
Corn—20 Bu. @ 60c Bu....	12.00
Oats—10 Bu. @ 40c Bu....	4.00
Wheat—10 Bu. @ 80c Bu..	8.00
Soybean Oilmeal—100# @ 1.50 CWT.....	1.50
Skim Milk—1573.5# @ 25c CWT.	3.93
Total Feed Cost.....	$46.98
Cost of Chicks.....	25.50
Electricity for Brooding Chicks	7.41
Total Out of Pocket Expenses	79.89

Table 2. Disposal of Broilers

Dec. 12—101 Broilers—206.7# @ .15.....	31.01
Dec. 15— 2 Broilers— 8.6# @ .15.....	1.29
Jan. 2— 20 Broilers— 76 # @ .17.....	12.92
Jan. 8—113 Broilers—511 # @ .18.....	91.98
Used for table at home—4 broilers @ .50 ea.	2.00
Total Receipts	139.20
Total Expenses	79.89
Profit	$59.31

How about it, John? Do you think buying a milker would enable me to keep the cows? You know Bill is near the top in this new draft call, and the Government is asking for more milk. I'm pretty sure I cannot milk our cows and do the other farm work alone.

Well, Tom, we like our milker. Some of the hard milking cows we were afraid of seem to "let down" better for this milking machine than they did when we milked by hand. Take it easy when you start. Learn all about the machine first, and how to use it; and be gentle with the cows. It's a new contraption to them, but they'll be fine if you start them right. Of course you will have to keep the machine scrupulously clean to avoid trouble and get a high rating for quality. We're doing it, and there's no more hand milking for me.

Time for Water Warmers

It's September. It may be very hot today. Two months till Thanksgiving,—and sometimes it is very cold then. Since there are scarcities and priorities and demands for more eggs, it is not too early to be thinking about water warmers for the hen house this winter.

Water warmers have continued to become increasingly popular, and for good reason. They insure drinkable water when the lights come on in the morning, and all day. They save labor of breaking out or melting ice and replacing water. Then, the experience of many farmers is that they pay for themselves in increased egg production and better physical condition of the birds. The warmers are of low wattage and some of them have thermal switches which cut off the electricity when the water is warmed to about 70°, which keeps down the operating cost.

One-fourth of all the maple syrup produced is used for flavoring tobacco.

Electrical Housekeeping

Edited by
GAIL MEREDITH

Like Ovens, Unattached

THE electric roaster makes itself at home in any kitchen. It will cook a whole meal for six or eight, or it will hold enough of a single dish for a crowd. It will bake light biscuits and flaky pies. It will bake cakes and muffins and bread.

With its broiler attachment it will broil as well as steam, roast and bake. It will can any food you could can in your oven and its deep cooking well is particularly convenient for making jams and preserves because it will hold so much and because its temperature is strictly under control.

With tricks like these up its sleeve a roaster need seldom be idle.

Besides that a roaster is portable. You, or the man about the house can carry it out on the porch, and you can do your cooking right out there some of these pleasant September days, and serve your dinner piping hot right from the roaster itself. Or you can detach the cord and wrap the roaster up and put it in the trunk of the car and carry it down the road when the neighbors gather for a pot luck supper.

A thermostat on the roaster lets you set the heat where you want it, and frees you from fire tending while the cooking goes on.

The question of where you'll keep the roaster has been answered by

Baking Day

▲ You have to preheat the roaster for baked foods. Just set the dial on the heat control to the temperature you want and watch when the signal light shuts off. Then the roaster is hot and you can put in your cake.

Taking off the cover while the baking goes on, slows up the cooking by letting a lot of heat out of the roaster into the room, and it also retards the browning of your cake or bread. Put in your pans quickly and clap the cover back down as fast as you can. This discourages peeking to watch results, doesn't it? Accurate temperature control and a clock on the wall make it unnecessary. They give you a good idea when your baking will be done.

Mrs. Storm Nickerson, Putt Corners Road, Ohioville, N. Y., thinks a roaster is fine for cakes.

Meals for a Crowd

▲ Last week I cooked eleven pounds of rolled beef rump in my roaster when I expected twelve for dinner. A whole ham fits in well, and I always use it for turkey.

You can bake ten pounds of beans in your roaster or make a scalloped dish of a peck and a half of potatoes.

This is Marie Smith, who lives in the Catskills near Medusa, N. Y. You can see that she thinks cooking in a roaster is just the thing to do.

Company Dinner for Six

Roast Chicken Sweet Potatoes
Brown Betty

▲ Get our chicken ready first, sutff it with your favorite dressing and put it in the largest roaster pan. Preheat the roaster to 350 degrees while you are getting the chicken ready, and time it so the chicken will have a chance to cook about half an hour a pound. Steam seven sweet potatoes until they are nearly tender. Slice them into one of the small roaster pans, covering each layer with light brown sugar, butter and thin slices of peeled orange. You will need half a cup of sugar and a third of a cup of butter, and two oranges. Cover the top layer with two-thirds of a cup of orange juice, and one-third of a cup of strained honey. Then top the whole mixture with half a cup of fine bread crumbs mixed with two tablespoons of brown sugar.

This goes in to cook an hour before dinner, so does the Brown Betty which you can have for dessert.

A roaster meal is like an oven meal of any other kind. You have to plan foods that want the same temperature for their baking.

Perhaps you noticed the clock on the front of this roaster. You can put the food in the roaster and set that clock to turn the current on when you want and off when the cooking is done. Automatic!

Like a pair of EXTRA HANDS to help you SPEED UP FARM WORK

• Before Westinghouse motors and other electrical helpers were installed, one New York dairy farm required two full-time hired men and a half-time hired girl. Now, the same work on this farm and in the home is done with only one hired man, at a cash saving of $272.00 per year above cost for electricity and equipment.

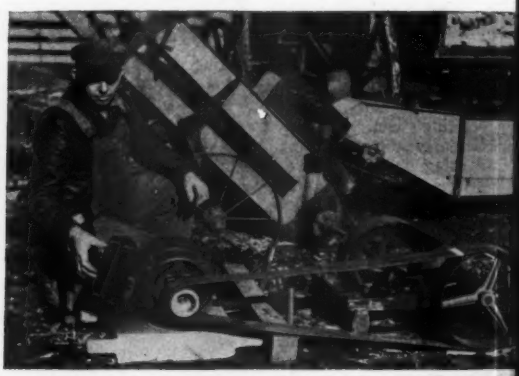
On a Pennsylvania poultry farm, operation of feed grinder, feed mixer, egg grader, water pumps and other equipment with Westinghouse motors enabled production to be doubled without additional man power.

On these and other farms the challenge to produce more of the foods vital to national defense is being met with the help of Westinghouse Motors and Home Appliances

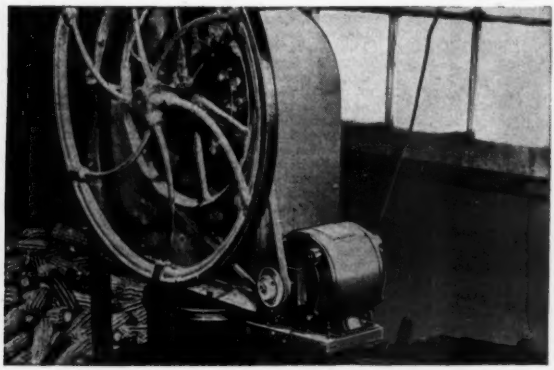
You can do the same on yours, and at lower cost than ever before.

If you are working long hours—if hired help is expensive and hard to get—see your Westinghouse dealer without delay!

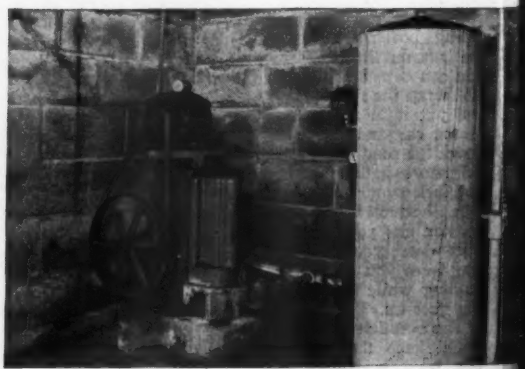
Fill your silo or chop roughage at less cost; free your tractor for use in the field, with a Westinghouse Type CU 5 or 7½ hp motor.



Corn goes into the crib in a hurry when the elevator is driven by a Westinghouse Type CU 3 horsepower motor equipped with portable skid mounting.



Save your time and muscles with a Westinghouse small portable motor. This ¼ hp motor equipped with portable mounting will do work that otherwise requires the full strength of a man or boy.

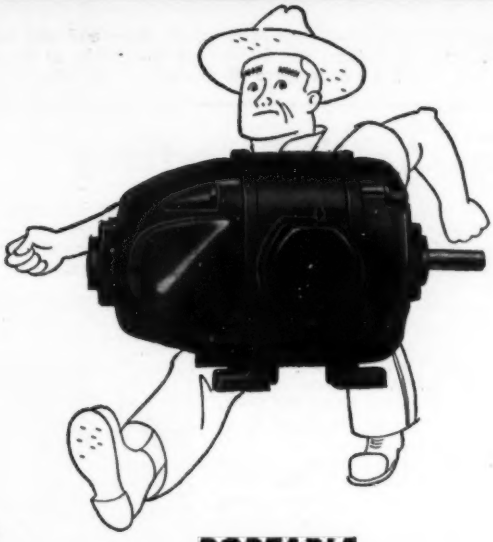


A running water system equipped with a Westinghouse Motor will pump and carry all the water you need for house and livestock for 2 to 3 cents worth of electricity a day—even less for shallow well systems.

UTILITY SMALL MOTOR

Several hours of someone's time are required each week on nearly every farm for pumping water, running grindstone, churn, shop tools, washing machine and similar equipment. An inexpensive small motor used with your present nonelectrified equipment or built into new equipment will do any one or all of these jobs at a cost of only a penny an hour for electricity. The time of a man or boy is free for other more profitable work.

Thousands of Westinghouse Small Motors are now conserving time and effort by running equipment formerly operated by hand. A practical choice for such use is a Westinghouse ¼ horsepower type FH, split-phase motor. Complete with snap switch and 9-foot heavy-duty cord, it is ready to plug in. For heavier work, there is a ½ horsepower motor, available with sleeve or ball bearings, single or double extended shaft and with Thermoguard overload protection.



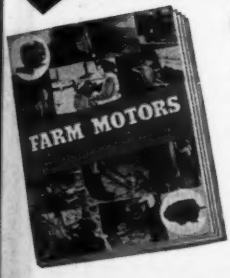
PORTABLE HEAVY-DUTY MOTORS

Equipped with a portable truck, easily and inexpensively made, a single Westinghouse motor can be used to run feed grinder, wood saw, corn elevator, ensilage cutter and other belt-driven equipment. Easy portability saves time. Economy of operation substantially reduces your power costs for such work.

For example, feed grinding costs are often cut in half, and the tractor freed for field work. Feed grinding can even be made automatic through the use of overhead supply and storage bins. Motor can be arranged to stop automatically when the supply bin is empty.

Westinghouse Integral Horsepower Motors especially suited for farm use are available in six sizes, 1 to 7½ horsepower; either sleeve or ball bearings.

FREE BOOKLET

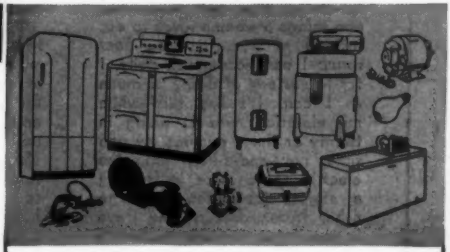


Of Moneysaving Ideas

Packed full of useful information about electric motors. Illustrates and describes the principal types of farm motors; gives complete instructions for making both fractional and integral horsepower motors portable; tells correct types and sizes for different farm uses.

If you now use or intend to buy an electric motor, SEND THE COUPON TODAY!

4-H CLUB MEMBERS! Sixth Annual National Rural Electrification Contest, with many valuable awards, is now under way. See your County Extension Agent for detailed information.



WESTINGHOUSE, DEPT. 1131, MANSFIELD, O.

Without obligation, please send me:

☐ Booklet, FARM MOTORS,

Also information on other items checked below:

☐ Refrigerators	☐ Water Heaters
☐ Ranges	☐ Vacuum Cleaners
☐ Roaster-Ovens	☐ Wiring Devices
☐ Laundry Equipment	☐ Lighting
☐ Milk Coolers	☐ Table Appliances

Print Name_____

Post Office_____

RFD_____ State_____

1RI-17

Westinghouse

ELECTRICAL PARTNER OF AGRICULTURE

some of the manufacturers who make a table or cabinet for it to stand on. You have to give it floor space and you have to set it near enough to an electric appliance outlet for the cord to reach.

Rugs Aren't Everything

Really now, cleaning rugs isn't everything! Vacuum cleaners can do a great deal more than that. Important things, too, for while there may be more than one school of thought about them, some liking one kind and some another, there are no two ways about dirt.

We women just naturally view it the way the Washington minister looked at sin. You know the story, I'm sure. The time President Coolidge went to church alone, you remember, and his wife tried to get him to talk about the sermon?

"What was the sermon about, Calvin?" she asked.

"Sin," said the president.

His wife stared. "Well, what about sin? What did he say?"

"He's agin it."

That's any housewife's platform on dirt. Completely, energetically, continually,—agin it.

And that is why it is only good business to get all the help she can from her vacuum cleaner. Dirt on the floor seems easy to do away.

with. That is the traditional job of a cleaner, but it is no longer the only one. Besides some folks think only of the dirt in their carpets and

rugs. Use the cleaner for those by all means. Forget that you ever had to move half the furniture out on the porch, wrap your head in a towel, and sweep up clouds of dust you would swear never could accumulate in your house. Unlike a

Time Off or Extra Hands for Hire

June Contest Winner

What woman hasn't wished for four extra pairs of hands to help get her day's' work started? Well, I have them, and I'm not a side show monstrosity. Let me explain. After my daily morning scramble of eggs, getting hubby off to work, feeding and dressing three boys under four years old, my extra hands go to work to give me my daily vacation. Yes, I have time off every day to do some of the dozen and one things a woman loves to do. Instead of trying to see ***how much*** I can accomplish daily, I try to ***get out of doing*** as much as I can! It's like this—while my electric churn is doing in twenty or thirty minutes my one time hour-and-a-half job, the electric refrigerator is freezing a stirless ice-cream, or some other frozen dessert; the stove is cooking a combination meat-vegetable dinner and supper; and my washer is scrublessly getting my daily wash ready to be put on the line. And I—am I fussing back and forth between these tasks to see that each is done right? No! No! With my original pair of hands I am effortlessly guiding my vacuum cleaner over my rug, dusting the walls, pictures and furniture electrically, and putting the entire house in apple pie order. True, I have to go back and take up the butter and put the clothes on the line, but I have not put out any energy to do them and these things are not tiring.

I could not write of my electric friends without mentioning my greatest helper. Like so many of our blessings which we take for granted, he works so silently and smoothly, his help is unnoticed. Before we got our electric pump my husband often remarked that it would take a small river running through my house to furnish me all the water I wanted. That's just what I have, and one of my fondest dreams is to get a jolly hot-natured wife (heater) for my pump-man—a pair that will serve me hot or cold water day or night.

When a child I had to wash sooty lamp chimneys and refill kerosene lamps every day of my life (unless I was clever enough to get out of it unspanked). I'll always be thankful to Edison that with the coming of electricity to our town my adulthood has been spared this chore.

There are other ways, too, where I save time and energy so that some weeks I have a whole day off for visiting, shopping, or whatnot, and yet do not have to do two days' work in one when I return. My introduction to cherry cobbler this spring instead of making a cherry pie, saved me twenty minutes daily and the results were greeted with greater gusto. I'm looking forward to the same savings with blackberry, peach and apple cobbler. It's more a matter of being alert to change and the modern ways of doing things rather than following blindly in grandmother's methods.

Other electric hands are waiting to come to my home. I hope to be able soon to invite them to stay, but until then I'm thankful for the ones I have and I'll continue to let them do **everything I can get out of doing!**

MRS. LEE M. KERNS,
Rt. 9, Box 338,
Charlotte, N. C.

broom, these vacuum cleaners will get not only the dirt on the top

of the rug, but the hidden dirt imbedded in the pile, too.

But do not forget either that the cleaner will pick up the dust you've pushed together with a dust mop; it will swoop up the flour you spilled on the floor, or the sugar, or salt. In fact it will give linoleum or bare floors a good going over as part of its regular work.

Different Types of Cleaners

Then, and here is where folks begin to differ in their likes and dislikes, some folks want to use the attachments for their large cleaner to clean the rest of the house. Some want a tank cleaner with different tools on the end of a hose to do all the cleaning, and some want a small hand cleaner especially designed for this work.

The cleaning tools that fit on your regular vacuum cleaner are a little larger than those you use on a hand cleaner, but their shapes and functions are the same.

Cleaning the stairs isn't rightly off the floor cleaning, or is it?

Whatever you call it, you can do it more easily with a nozzle on the end of a light metal wand, lengthening the hose of the cleaner than you can with a brush broom, or by lifting the cleaner from step to step.

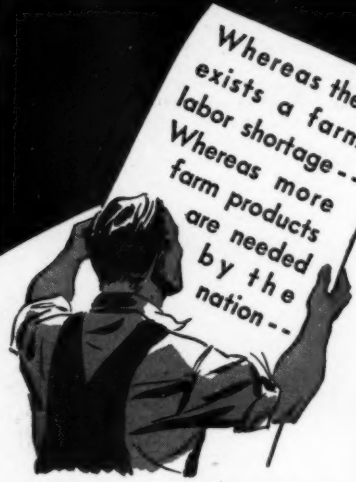
You can clean upholstered furniture and mattresses with the same wide nozzle, and you can clean lamp shades and curtains with a soft, round brush. You can use the same brush to go over a row of books, to clean over a window and along the top of a door. You can run it about in the drawer of your dressing table, and make it dust a closet without taking down the clothes.

To dust the walls there is a narrow oval brush whose bristles are both detachable and washable. For digging along the sides of cushions, for dusting the crack between mopboard and floor, and for really getting at the dust between the fins of your radiator, you use a special long, narrow suction nozzle.

If you fight moths with a spray, you can put your insecticide into a jar that you attach to the end of the hose, moved over to the blower side of the cleaner, and the motor will give you a fine pressure for a spray. Germicides and deodorants can be handled the same way. You can spray outside as well as in if your cord will reach your roses or the clumps of perennial phlox.

Rugs aren't everything. Not by any means.

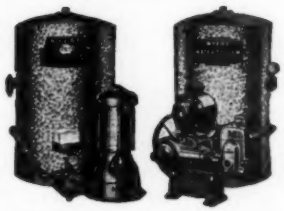
Proclamation to American Farmers —



NOW

Especially

dependable automatic water service is a farm necessity



No official proclamation is needed for you to realize the importance of conserving your time and making your work hours count to best advantage. You'll save many hours weekly—you'll produce more of the products the country needs—by letting a Myers Water System be one of your "hired hands". And when you choose Myers, you get *utmost dependability* in automatic water service—which means a further saving of both time and money. See your nearest Myers dealer! Mail the coupon now!

The Myers line of water systems—the world's largest—includes reciprocating and Ejecto types for every farm need. All styles and sizes for deep and shallow wells—all designed and built to maintain Myers reputation for unfailing, low-cost service over the years!

MYERS WATER SYSTEMS

Take Off Your Hat to the MYERS

THE F. E. MYERS & BRO. CO.
Mfrs. of Farm Operating Equipment
1129 Orange St., Ashland, Ohio

Send free Water System Booklet and name of your nearest dealer.

Name .....

Address ..... (15-WS-1)

Washing Machine Pays for Itself

By **RAYMOND DONOVAN**

A novel way of making her washing machine pay the monthly installments on itself is being used by Mrs. A. N. Dodd, a widow, living at R.F.D. 1 Lincoln Park, New Jersey.

When her husband died three years ago leaving her with the poultry farm to run and twin boys nine years old to raise she felt the need of electrical household equipment more keenly than ever because of all the extra duties she had to assume. The two thousand chickens demanded more and more of her time. She felt that she couldn't afford to hire a housekeeper nor a man to run the ranch.

Keeping the two children outfitted in clean clothes was one of her major "headaches." She used to be up until twelve and one o'clock on wash day washing, and wishing for a washing machine to give her some relief.

One night while leaning over the old tub, the idea struck her that perhaps she could make a machine pay for itself. Her idea was to rent the machine to neighbors once a week and in this way make it pay the monthly installments.

None of her near neighbors owned a machine but she had heard many of them remark that they'd go without most anything if they could just buy a washing machine.

The Idea Worked

Three days later Mrs. Dodd, canvassed her neighbors and offered to let them do their washing in her machine and at her home for twenty five cents per wash.

She agreed to pay the electric bill and for fuel for heating water, and have her boys call for the soiled clothes. The customer was to supply her own soap powder, clean the machine and take the wash home when it was dry.

Out of seventeen prospects, Mrs. Dodd, found thirteen housewives who were more than glad to avail themselves of this service. She arranged with each customer the time and day she was to do her washing and also arranged to be paid right after the washing was done. She has a small bank into which each quarter is dropped as it is paid to her. She never gets her washer money mixed with her house money. After paying the electric bill, the balance going to the financing company for the washer.

Her machine, is located on an enclosed rear porch. The clothes are hung on an outside line except on rainy days she has a line stretched back and forth across the porch.

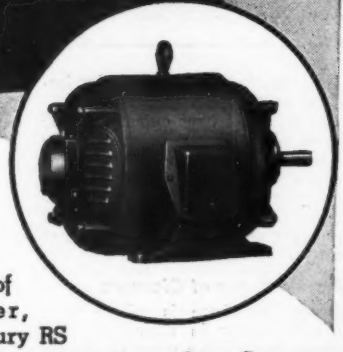
She takes care of three customers each Monday, Tuesday, Wednesday and Thursday. On Friday morning the odd customer does her wash. On Friday afternoons Mrs. Dodd, does hers.

Three Neighbors Bought Machines

Three of her customers, having discovered just how fine it is to do the washing with a modern machine, have bought machines for themselves. Two more are planning to get them. Mrs. Dodd does not worry over the loss of customers as she has a waiting list of housewives who want to rent her machine.

The electric bill is only about three dollars more per month since she started the rental service. Monthly collections for rental of the machine amount to from thirteen to sixteen dollars. Up to the present time, water has been pumped by hand. The venture has been so successful that an electric water system is now being installed.

Specify **CENTURY RS MOTORS for Hard Jobs!**



● Because Century Type RS, Repulsion Start Induction, Brush Lifting Single Phase Motors have exceptionally high starting torque (turning effort), require less starting current and therefore produce least light flicker, they are the ideal motors for practically all farm use.

More and more, progressive farmers who have taken advantage of rural electrification are letting Century RS Motors do their heavy chores. They're ideal for automatic controlled water pumping, feed grinding and shredding, and for many other jobs.

To be sure of the most dependable and economical source of farm power, specify Century RS Motors on the equipment you buy. See your equipment dealer, or write for full information.

CENTURY ELECTRIC COMPANY

1806 Pine Street St. Louis, Mo.

Offices and Stock Points in Principal Cities

Century MOTORS

One of the Largest Exclusive Motor and Generator Manufacturers in the World

Quick Teakettles

If yours is a family always wanting hot water in a hurry, you can get it for them, one quart or four, in one of the new electric tea kettles. Just fill up the kettle and plug it into a convenience outlet.

One of the newest kettles is a double boiler, too. You take off the cover and set a deep pan into the top. It fits snugly and is just the thing for cooking cereals, sauces, custards and puddings.

These tea kettles heat water quickly. I have one that I use frequently for tea or drip coffee. If quickly isn't fast enough for me I plug the cord into the convenience outlet and then set the tea kettle on one of the burners of my range. That tea kettle whistles in my ear before I have a chance to get the tea in the pot or the coffee measured into the top of the coffee maker.

My elecric tea kettle can be heated that way. Any of them can, for all I know, but I am not sure about it, and I would suggest that you find out whether your particular tea kettle takes kindly to this two way heat, before you try it.

My Favorite One-Dish Meal

(A Contest Letter)

Dear Gail:

"I feel as though I'm writing to an old friend for I'm so familiar with your name, through reading each issue of "ELECTRICITY ON THE FARM."

"Although my rating is "0" for putting down in words what I want to say, I just couldn't resist the November contest subject, "My Favorite One-Dish Meal." You see, it has always been a source of pleasure and joy for me to toss "some of this" and "some of that" together, put it in the oven or deep well cooker of my electric range, and forget about it until we are ready to eat. Although I have many of my own favorite dishes, my very favorite, and one that finds a place on our table quite often, is the following:—

"We are one of the fast growing privileged families, who has the "super" advantage of a locker in our community—fresh meat all the year around. So nearly every time a package of round steak (about 1 lb.) comes from the locker, it gets cut up into small pieces. First, I cook one cup of onions slowly until yellow in one-fourth cup shortening (if I'm feeling extravagant I use butter which makes it "super"; otherwise just plain lard). Then I remove the onions, and add the meat, which I roll in a mixture of one-fourth cup flour, two tsp. salt, one-eighth tsp. pepper, one-half tsp. paprika, dash of ginger and dash allspice. After the meat is well browned, I add two and one-half cups boiling water, and simmer until meat is tender (about 1 hour). Then I add two cups raw potatoes, diced, and cook ten minutes longer. These are the ingredients of the original receipe, but if I have left over carrots or peas, in the "soup" they go. Then I pour this mixture into a greased casserole, lay the cooked onions on top, cover with an English-style pie crust, (plain pie crust with a slightly beaten egg added), seal the edge of the pie and bake in a hot oven (450°) thirty minutes.

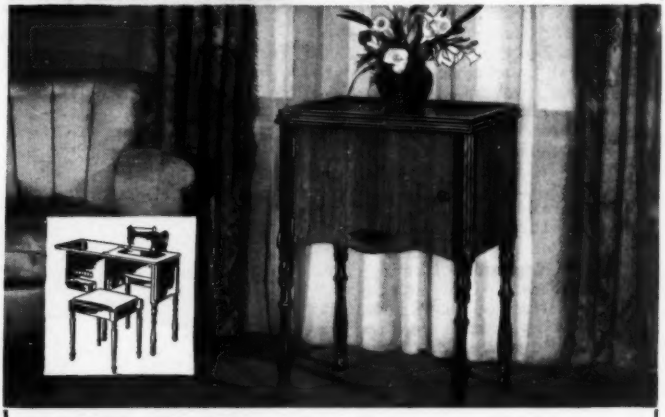
"There you have it—the most delicious one-dish meal ever placed on a table. It takes very little time to get the ingredients ready.

"As to how many it serves, it depends on how much extra you add; however the original recipe is supposed to serve six, but frankly when it comes to a hungry farm family, three can "lick the platter clean.'

Sincerely yours,
MRS. SHELDON WERKHEISER,
R. 1—Lena, Illinois

"WORTH IT!"

"I've done miles of sewing in my day, on all kinds of machines. And I'm telling you, nothing beats the new Singer electric machines! They're marvels . . . and worth every penny they cost."



Budget-priced Electric. It costs little, sews with Singer perfection. See it and other new Singer electric models at your nearest Singer Shop. Or, drop us a card for a demonstration in your home. There's no obligation, and at the same time you will also be given a trade-in estimate on your old machine.

SINGER *"1500 Singer Shops and Authorized Distributors"*
SEWING MACHINE CO., 149 Broadway, N. Y.

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School Clothes

By **Mary Margaret Lynch**

Girls grow in Summer, so that last Spring's school clothes never quite fit this Fall's girl. Since new outfits are expensive to buy, many mothers have been pleased to learn how much they can save by making their daughter's school clothes at home.

The materials shown in the stores are so attractive, and the new patterns have such complete directions that dressmaking is easy, even for the inexperienced sewer. Some daughters can do all the sewing themselves, for they never have any trouble with the wheel going backwards and breaking the thread, if they sew with an electric sewing machine. There is no drudgery in sewing with electricity, for the work goes quickly with no tiring foot treadle to push.

The cost of making clothes at home is usually about one-half the cost of buying the same clothes ready-made. In the wardrobe below, there are three school outfits and one better dress. Materials, patterns and notions are included in the cost of making these clothes at home. The materials are much better than those found in the cheapest ready-made garments. Many of them were priced in a mill-remnant store, which accounts for their low cost. The ready-made clothes were priced in a small-town department store and in the pages of a mail-order catalog. They would cost more in a large city.

The clothes listed here are only suggestions around which you can plan your own daughter's school outfits. Let her help to select the materials, and you wil both be pleased with Daughter's new clothes.

Two new and becoming school fashions, a practical skirt, blouse and jerkin, Simplicity pattern 3912 **(upper)** and a woolen sailor dress, Simplicity pattern 3910 **(lower).**

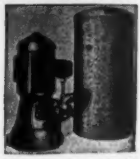
Girl's School Wardrobe

(prices for size sixteen)

1 Plaid Gingham Dress	
3½ yds. gingham @ 39c	$1.37
Dress pattern	.15
Zipper	.25
Thread	.05
Cost to make	$1.82
Ready made	3.69
Saving	1.87
1 Wool Flannel Skirt	
1½ yds. 54 in. wool @ $1.50	$2.25

DELCO WATER SYSTEMS

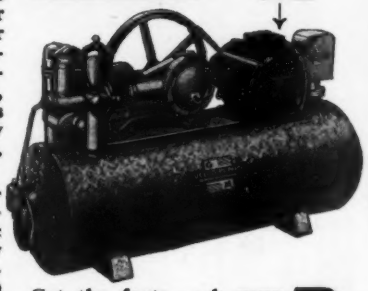
Increase your CASH INCOME!



DELCO-JET SYSTEM

← DEEP WELL SYSTEM

SHALLOW WELL SYSTEM



Like other machinery, Delco Water Systems will pay for themselves on any farm. But that is not all—for, if your cash income comes from milk, eggs or vegetables, Delco Water Systems will actually increase this income. Because it's been proven that, if cows, hens and gardens have all the water they need, they produce more.

Delco General Motors' Engineers have built a complete line of Automatic Delco Deep and Shallow Well Pumps, with capacities of from 180 to 1,600 gallons per hour, to give years of carefree service and to be economical both to buy and operate. They will pay for themselves quickly, increase your cash income right away and bring more comfort and convenience into your home than anything you can buy.

Get the facts—ask your Delco Dealer who will recommend the most economical kind and size water system to use or send in the coupon today. Buy on FHA Terms if you wish.

DELCO APPLIANCE DIVISION
General Motors Sales Corp.,
376 Lyell Avenue, Rochester, N. Y.
Please furnish, without obligation, complete information on Delco Water Systems.

Name.....

Town.....

State.....R.F.D.....

DELCO WATER SYSTEMS
PRODUCT OF GENERAL MOTORS

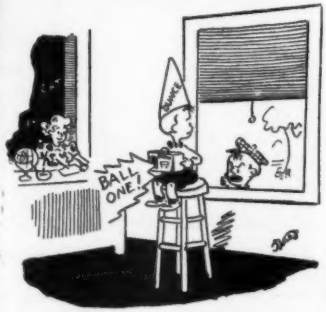
September Contest

Do you like to bake cookies? If you have an extra special cookie recipe, we would like to have you send it in this month.

We will pay five dollars for the recipe we choose for the blue-ribbon cookies.

The recipe must be in by September 30. Send it to me, Gail Meredith, 700 S. Mills Street, Madison, Wisconsin.

Pattern (blouse included)	.15
Zipper	.20
Thread	.05
Cost to make	$2.65
Ready made	3.49
Saving	.84
1 Striped Broadcloth Blouse (long sleeves)	
2¼ yds. broadcloth @ 25c	$ .57
Pattern included with skirt	..
Thread	.05
Buttons	.10
Cost to make	$ .72
Ready made	1.00
Saving	.28
1 White Pique Blouse (short sleeves)	
1¾ yds. pique @ 25c	$ .44
Pattern same as above	..
Thread	.05
Buttons same as above	..
Cost to make	$ .49
Ready made	.89
Saving	.40
1 Chambray Dress	
3½ yds. chambry @ 25c	$ .88
Pattern	.15
Thread	.05
Rick-rack Braid	.10
Snaps	.05
Cost to make	$1.23
Ready made	1.98
Saving	.75
1 Spun Rayon Better Dress (resembles thin wool)	
3¾ yds. material @ 50c	$1.75
Pattern	.15
Thread	.05
Zipper	.25



"I told Ya not to bring that thing. She's just making you stay after school so she can hear the game"

Cost to make	2.20
Ready made	4.98
Saving	2.78
Total cost to make	$9.11
Total cost—ready made	16.03
Total saving	6.92

Shorten Chores by Radio

Every now and then we hear of some farmer in California or Connecticut who has a radio in the cow barn. Some of them are put there for the psychological or sexological effect on the cows and some just to entertain the crew or bring in the news while doing the chores. A few years ago, the story of a radio in the cow barn brought a smile. Today, radios in the barns and hen houses where men have to work, are bringing lots of smiles. Good music or news makes the time pass faster on a disagreable task or helps one forget the task. Perhaps the music is quieting to the cow and makes her give down her milk better—or just forget to hold it up, but we suspect that the quieting effect on the men has a beneficial effect on the cows. A radio in the barn may be a good investment in health, happiness and milk.

The New Aire-Matic "90" does 90 different jobs!

Premier's New All-Purpose Cleaner

It's versatile, this new Aire-Matic—capable of doing as many cleaning jobs around the house as there are jobs to be done! And it does them well and quickly. It's compact, lightweight, easy to move about—with 7 simple attachments that are expert in getting dirt out of otherwise hard-to-clean places. There's plenty of power, too, for thorough cleaning of rugs and carpets. Best of all, for your budget's sake, it's a bargain—a money-saver as well as a time-saver, and work-saver!

Only $39.95 and old cleaner

Without Old Cleaner $49.95

PREMIER

A PREMIER FOR EVERY PURSE—EVERY PURPOSE!

Premier manufactures all types of vacuum cleaners in all price ranges. There's a Premier cleaner or combination of cleaners that will meet your cleaning needs and your budget requirements as well!

PREMIER DIVISION, ELECTRIC VACUUM CLEANER CO., INC.
1734 Ivanhoe Road • • • Cleveland, Ohio

Please send me complete information and literature on: ☐ The Premier Aire-Matic "90"; ☐ other Premier cleaners. Also send me names of nearest Premier dealers.

Name.....

Address.....

City.....*State*.....

The Question of Flies

There are few pieces of electrical equipment which arouse as much interest as fly traps and screens. The reason probably is that there are few things which so many of us have that are such a nuisance and a menace to health as flies. September is a bad month for flies. They seem to develop a special liking for back porches, kitchen tables and bald heads.

The reason for bringing up the fly question here is the picture and short article we printed in the June issue under the title "Flies Are Back." It showed two fly traps and thousands of flies which had been killed by them in six days. Since then a number of our readers have bought fly traps. One reader wrote that the trap he bought with a light in it and made to be hung up did not do a satisfactory job of killing flies, and it caused some radio interference. Another reader wrote that his trap killed so many flies and interested so many people who insisted on buying it, that he finally bought four at once and had managed to keep only one of those. Flies were killed by the half-bushel.

An electric fly trap is like an electric fence in that it will cause noises in some types of radios. Condensers in the radio circuit help to eliminate this. Then there are two types of traps, one with lamps for insects which are attracted to light and one without lamps for flies. The traps with lamps are for moths, garden insects and those that fly at dusk and at night. They are usually cylindrical or of bird cage design and intended to be hung in the open. The fly traps use a bait of sour milk or anything flies like, or *dead flies* as attraction for live ones. The trap should be placed where flies can easily find it, such as warm places with odors which attract the flies, and not in a strong breeze.

In buying insect traps it is advisable to tell the manufacturer where you want to use the trap and what insects you want to kill. He should be able to suggest the trap which will do the job best.

Sunbeam
DOUBLE AUTOMATIC
IRONMASTER

AMERICA'S FAVORITE

I chose Sunbeam Ironmaster's cool, convenient Thumb-tip Heat Control up here in the handle right under your thumb.

I never held such a cool, comfortable, wrist-resting handle. And Ironmaster's LIGHT WEIGHT makes it a dream to handle.

I prefer the Sunbeam because it heats so quickly, holds its heat so evenly in the midst of ironing and thus irons so much FASTER and EASIER.

The reasons why over a million and a half women have switched to Sunbeam Ironmaster have been given us by women themselves

Hundreds of homemakers tried all six leading makes of irons and selected Sunbeam Ironmaster as their FIRST CHOICE nearly TWO TO ONE. Here are some of their reasons why:— ● **QUICK, STEADY HEAT** *made possible by Double-Automatic Heat Control, an exclusive Sunbeam Feature.* Ironmaster not only heats fast but never *overheats*—gives *correct* heat right from the first plug-in. ● **HEAT CONTROL DIAL RIGHT UNDER YOUR THUMB**—up in the handle. A touch sets it for LINEN • COTTON • WOOLENS • SILK • RAYON. Easy to see, always cool. ● **FASTER IRONING, EASIER HANDLING** that enables you to finish quicker, feeling fresher. Fast High Heat for linens. Safer Low Heat for Rayons.

Get YOUR Sunbeam Ironmaster *NOW* and see what a big difference it makes on ironing day. $8.95 wherever good electric appliances are sold.

Made and Guaranteed by CHICAGO FLEXIBLE SHAFT CO., 5600 W. Roosevelt Rd., Dept. 30, Chicago, Ill. Canada Factory: 321 Weston Rd., So., Toronto. 52 Years Making Quality Products.

famous for Sunbeam TOASTER MIXMASTER COFFEEMASTER WAFFLEBAKER SHAVEMASTER

Frozen Grass for Poultry

A possible new use for frozen farm storage is suggested in the U. S. Egg and Poultry Magazine for August. Investigators C. A. Denton and H. W. Titus report that cereal grasses cut at an early stage of growth and ground to a puttylike mass and frozen retained their fresh qualities when later thawed and fed to poultry.

Cotton in Mattresses

When the second mattress and comforter of the USDA is completed, 566,000 bales of cotton weighing 500 pounds each will have been used. This is the program allotting free cotton for mattresses for low income families.

A close-up profile of John Wagstaff as he interprets the beloved comic character of Pop Eye the Sailor Man. A study of this photograph will show what he does when he dislocates his lower jaw, extends it forward and upward, almost covering his nose and all of his upper lip.

By JEROME J. HENRY

Story of War Claim

Can a single man be credited with winning the first World War for the Allies? Could it be possible that one man turned the tide of victory?

The story of an unknown Englishman who claimed that distinction was told over the air recently by H. V. Kaltenborn, veteran radio news analyst.

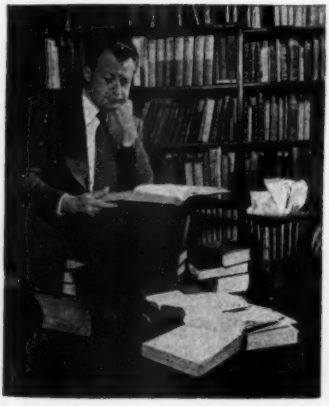
Towards the end of the War, according to the Englishman's story, the battered Belgian army was on the verge of surrender to the Germans unless help came from the British at once. In desperation a picked band of Belgians had overpowered a German sentry on the channel coast so they might light signal flares and attract the British fleet.

The Englishman, according to his story, was aboard a British warship in the channel. He saw the flares and put out for shore in a small boat. The Belgians told him of their plight.

Aboard the ship were eight cases of Cameron Highlander uniforms. The Englishman claimed he invented the ruse which won for the Belgians. He persuaded them to attire themselves in the Highlander uniforms and parade up and down the beach in the light of early dawn. He hoped thus to trick the Germans into believing that the British had landed reinforcements to relieve the hard-pressed Belgians.

The trick worked, according to the Englishman's story. It took the fight out of the Germans. They never came a foot farther through Flanders, saving the Allied west flank and ultimately, the Englishman believes, winning the War.

Kaltenborn also discussed how reporters sift rumor from fact during the turbulent days of war.

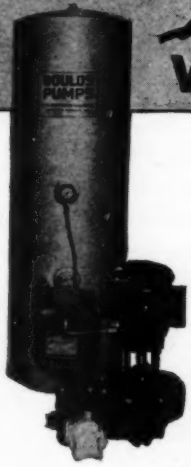


Expert doing his home work—One expert who has to work to keep ahead of his fellow-performers is Clifton Fadiman, who asks the questions, but needs to know a lot of answers on the "Information Please" program.

About People in Radio

Goodman Ace, the better half of the "Easy Aces" team (by his own admission), used to read the Sunday "funnies" over the radio in Kansas City. . . . Edgar A. Guest, poet-philosopher, is a golf fiend. He now keeps a set of clubs in Chicago, as well as at home in Detroit, so he can get in a round on broadcast days. . . . Alla Nazimova, one of the best performers on the "I'm An American" series, came to the United States with a Russian Theatrical troupe in 1904, unable to speak a word of English. Finding their play—a plea for social justice—

GOULDS JET-O-MATIC
Dual Service
WATER SYSTEM



One unit for either shallow or deep wells, no loss of investment if water in shallow well drops. Can be put anywhere regardless of well location.

Is all that a water system should be.

- High Suction Lift. 28 feet for shallow wells.
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- Is completely automatic. No special air changing devices needed.
- Operation is absolutely quiet. No pulsation—no hammering. Smooth, even water flow.
- Can't build up dangerous pressure. No relief valve needed.

Motor has sealed lubrication—no crank case to fill—system requires no attention—investigate its possibilities at your nearest Goulds dealer—check its features—see for yourself why Jet-O-Matic offers you the most for your money.

GOULDS

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340 Fall Street, Seneca Falls, N. Y.
Please send me the name of the nearest Goulds Distributor. And full information about the new Goulds JET-O-MATIC Water System.
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Address ..... State .....

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to have the most efficient home cleaning equipment. ROYAL, with its many features of superiority — its smooth, quiet power and speedy thoroughness, means less work for you, longer life for your home furnishings, and greater happiness for every member of the household.

Everything in the home—rugs and carpets, upholstery, curtains, lamp shades and bedding—are easy to keep fresh and new looking with the aid of a ROYAL.

Have the cleaning service to which you are entitled, by choosing ROYAL—the standard of quality and value for thirty years. Priced from $29.95 to $67.50.

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OPERATES EASILY, ECONOMICALLY,
with a 5 H.P. Electric Motor

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BLIZZARD MFG. CO.
Box E, Canton, Ohio

banned in their own country, the troupe had come to New York to produce it. Although she had a contract to return to Russia after the close of the play, Nazimova postponed her return for a year, and when she finally arrived home, realized she had "become an American." . . . Somebody's always burying something under new buildings when they dedicate them. Latest is a sealed capsule of phonograph discs by such exponents of swing as Artie Shaw, Benny Goodman and Tommy Dorsey, which was sunk under the new Palladium Ballroom on Sunset Boulevard in Hollywood. . . . Charles Dant, NBC staff conductor, was a fraternity brother of composer Hoagy Carmichael at the Indiana University Conservatory of Music; and it was Dant's arrangement of Hoagy's "Star Dust" that accelerated its climb to immortality.

Full of original ideas for parties is Helen Stevens Fisher. As the "Little Lady of the House" she is a bi-weekly feature of the National Farm and Home Hour.

Old Songs are the Best Songs

Eddie Cantor always puts on a show for his studio audience after the program for airwaves is completed. One of the features is singing requested songs. And these are invariably old songs, says Cantor.

Introducing the Quiz Kid repeaters: Jack Lucal, Joan Bishop, Gerald Darrow, Cynthia Cline and Richard Williams, with Quizmaster Joe Kelley.

The perennial favorite? It's "Margy." Few studio audiences will depart satisfied unless the pop-eyed comedian comes across with the song.

Marks 4000th Program

A gala anniversary celebration marked the 4,000th broadcast of the National Farm and Home Hour last month. A special program commemorating the event featured an address by the Secretary of Agriculture, Claude R. Wickard.

The program, following this talk was devoted to a swing around the country, with pickups from important farming regions, including the Indiana farm of the Secretary of Agriculture, a Colorado ranch, a farm family in Georgia, and a wheat field in North Dakota.

Hot Water Is Not Free

Many people have the erroneous notion that water heated by putting a coil in the furnace or a waterback in the range, is heated free. The truth is that heating water takes energy—calories from wood, coal or oil;—kilowatt-hours of electricity. If those calories from fuel are used in heating water in the furnace, they do not come up through the heating system to heat the house. The waterback in the range takes heat from the oven and the cooking surface. If much hot water is used while one is baking, it may be difficult to hold an even temperature in the oven.

Because one does not have an electric water heater, does not mean that he is not paying for heating water.

Oranges contain practically no starch, and therefore do not ripen further after they are picked.

Questions and Answers

S-4 Lamp for Humans

▶ **Question:** *How long an exposure is recommended for humans with the Conti-Glo sunlamp? Is the transformer and other parts furnished correct to get the proper results for using the sunlamp on my family, poultry or little pigs?*

O.S., Mo.

▶ **Answer:** The transformer used with the Conti-Glo Sunlamp is the one designed for use with the S-4 lamp, and should last indefinitely and should give good satisfaction. The lamp bulb itself has an estimated life of 1000 hours of use or 400 times on and off.

Use the lamp on human beings the same as you would expose your body to direct sun's rays. Try it for, say, 10 minutes the first day at a distance of three feet. If it does not cause sunburn, you can use it for a longer period. Some people are more susceptible than others.

Improving Furnace Heat

▶ **Question:** *Last winter M. H., Neb., asked how to get better distribution of heat from a gas floor furnace by use of a fan. Reader J.E.B., Cal., makes these helpful suggestions.*

▶ **Answer:** A floor furnace is attached to the under side of the floor and supplies heat through a floor register similar to a pipeless furnace. As with most types of heaters which do not use forced air circulation (fan), air temperatures near the ceiling of the room will be 20° to 30° above that at floor level. Use of a fan to stir the air in the room will bring down this heated air and raise the temperature in the "living zone" without increasing fuel consumption. In my own home a floor furnace using 40 cu. ft. of gas was installed in our dining room floor to heat the house. In order to heat the other rooms, it was necessary to overheat the dining room. Three years ago I installed a basement furnace using 55 cu. ft. of gas but equipped with a blower circulator. Now we get uniform temperatures in all the rooms with a difference of only 4° between ceilings and floors. And my fuel consumption is actually lower than with the smaller heater because we get full benefit of all the heat generated.

Gate for Cars

▶ **Question:** *I am anxious to get an inexpensive, efficient device for opening and closing my gate from my automobile. I want it to be something that won't get out of order easily. Can you give my any suggestions?* N.M., Wash.

▶ **Answer:** Farm gates are a little out of our line and we cannot advise you from personal experience regarding all types of automobile gate.

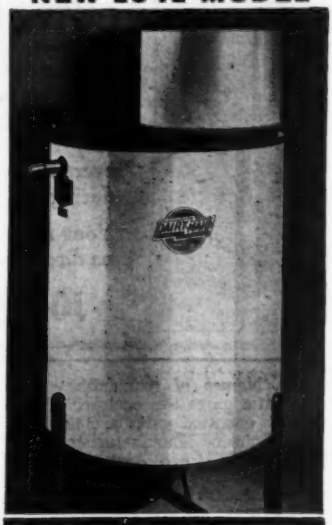
If the gate is just to restrain cattle and horses, a common procedure in the Southwest is to dig a pit about 2½ ft. deep and about 6′ x 8′. The fence is run to the edge of the pit on both sides and across the pit is placed a cattle guard bridge made of 1x6's or 1x8's on edge, 6″-8″ center to center. Above the cattle guard is left open so a car may be driven across. Cattle will not cross the pit. There are a number of gates which can be opened and closed by pulling on a rope from the car as you drive up. They are quite satisfactory when kept in repair but are dependent upon having a good solid, well anchored gate

New cool, easy running Electric Cow Clipper— STEWART CLIPMASTER

Preferred the world over for its greater speed, ease of handling, rugged, lasting durability.

New anti-friction tension control assures perfect tension between blades for cooler, lighter running—faster, easier clipping. Makes blades stay sharp longer. **Exclusive** Stewart design ball-bearing motor is air cooled and entirely encased in the insulated **EASY-GRIP** handle that is barely two inches in diameter. Completely insulated—no ground wire required. The fastest clipping, smoothest running, easiest-to-use clipper for cows, horses, dogs, mules, etc. A $25 value for $19.95 complete. Slightly higher West of Denver. 100-120 volts. Special voltages slightly higher. At your dealer's or send $1.00. Pay balance on arrival. Send for FREE catalog of Stewart electric and hand-power Clipping and Shearing machines. Made and guaranteed by Chicago Flexible Shaft Company, Dept. 30, 5600 Roosevelt Road, Chicago, Illinois. **32 years making Quality products.**

NEW 1941 MODEL



HOT WATER ALWAYS

At Much lower Cost / Than Ever Before.

With SURGE DAIRY-MAID ELECTRIC WATER HEATER

At last! A portable heater that uses slow heating, automatically controlled... plus heavy insulation... to give you plenty of hot water, 24 hours a day, at much less cost than you ever dreamed possible! No pressure needed; no expensive installation; just plug it in! Nothing in years has made such a tremendous hit with dairy farmers all over America! NOW they can maintain cleanliness always...at the least possible cost! Heavy insulation keeps the water hot for many hours and, by automatic control, current is used only when needed, That saves you DOLLARS! MAKE US PROVE IT!

Ask for FREE Demonstration!

Just Mail Coupon!

BABSON BROS. CO. 2843 West 19th St. Dept. 5516, Chicago

Please mail full particulars about the Dairy-Maid Heater, your Easy Terms, and your Free Demonstration Offer.

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OUTDOOR RUNNING WATER—*In Winter*

Almost every farm needs one or more outdoor sources of running water that can be depended upon even in the coldest weather. Vogel Frost-Proof Hydrants supply the answer to that need. Economical in first cost, easy to install, dependable in operation, Vogel Hydrants are used wherever freezing conditions prevail. They also afford an extra fire protection during the winter months. Upward of 30,000 now in service.

Your nearest supply house handles Vogel Frost-Proof Hydrants, or write us direct for complete information.

JOSEPH A. VOGEL COMPANY, Wilmington, Delaware

post. Names of manufacturers of automatic gates are enclosed. Electrically operated gates are made by the Kinnear Manufacturing Company, 736-86 Field Avenue, Columbus, Ohio.

Water Hammer in Pipes

▶ **Question:** *I have an electric pump in a well about 400 feet from the house and at a higher elevation than the house. Part of this pipe is inch and a quarter and the balance one inch. The pressure at the house is about 50 pounds and we are troubled with a water hammer if the faucets are closed too suddenly. Is there any remedy for this?*

W. W. C., Ore.

▶ **Answer:** There are two ways to get away from this water hammer. One is to install an air cushion by putting a "T" in the water line near the house and installing an air dome or tank holding, say, five gallons. This will cushion the surge of water when the water column is suddenly cut off. It will be necessary to provide some means of pumping air into the top of this tank occasionally as it will gradually fill with water and cease to function. The other method would be to install a pressure reducing valve near the house. This would, of course, reduce the rate of flow of water.

To Keep Pipe from Freezing

▶ **Question:** *I have a water tank about 12 ft. from my barn which supplies water for drinking cups for my dairy. When it gets 10 degrees or more below zero the pipe from tank to barn freezes. Could I in some way use hot bed cable under this pipe to keep it from freezing just plugging in the cable in the coldest weather? What is the cost of such cable and the amount of current it would use and is there any danger of injuring stock drinking from the water cups?*

F.S., New York.

▶ **Answer:** You can use soil heating cable for keeping your pipes from freezing; but, frankly, it would be cheaper and more satisfactory in the end I think if you could bury the pipes below frost line. The soil heating cable will cost you about $4.50 for a 60 ft. length, and the power consumption would be about one kilowatt-hour for each two and a half hours the current was on. If the pipe ran through or was connected to moist earth, there would be very little danger of shock to livestock.

Corrosive Water

In further answer to W. S. H., Cal. (May issue) the Permutit Co., 330 W. 42nd St., New York City, manufacture a neutralizer for corrosive water which may be used with or without a water softener.

Portable Elevator for Grain

"In the June issue of ELECTRICITY ON THE FARM I noticed an article

buyers' INFORMATION service

As a reader of this magazine you are entitled to our buyers' information service free of cost. When looking for information about equipment or material that you plan to buy, first read carefully the advertisements in this issue. Then, if you do not find what you want, just use the coupon below to tell us what you need and we will see that you get the information you want

USE THIS READER SERVICE COUPON

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Without cost to me, please have manufacturers send complete information on the following Electrically Operated Equipment which I am thinking of buying:

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My name is.....

Address.....

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I get electricity from.....

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TRUMBULL Electric Poultry WATERWARMER

Frozen water, not just cold weather, stops your hens' laying. Drinkable water means more eggs, less work and bigger profits. See your Dealer for information about contests or write today.

THE TRUMBULL ELECTRIC MFG. CO.
1012 Woodford Avenue - Plainville, Conn.

Monarch ELECTRIC and COAL-WOOD COMBINATION RANGES

Today's most popular "high line" range. Built to provide year 'round convenience and comfort in the farm kitchen.

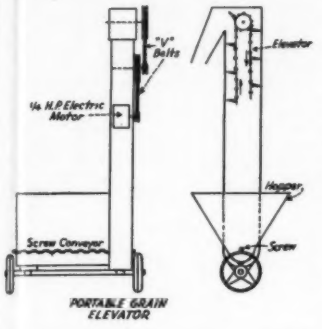
See your "Monarch" retail outlet or—

Write for booklet illustrating complete line.

MALLEABLE IRON RANGE CO.
1241 Lake Street Beaver Dam, Wis.

by H.K.W. requesting information on a grain elevator with about 200 pounds per minute capacity.

"The enclosed sketch shows a possible conversion of the type elevator used on the Allis-Chalmers combine or the John Deere combine. This



PORTABLE GRAIN ELEVATOR

would do the work with ¼ hp and can be used with a screw conveyor hopper or with a small gravity hopper. If mounted on wheels as shown, it could be readily rolled around by one man, since this equipment is light in construction. It would be necessary to make a double reduction from the standard 1800 rpm motor to the head pulley since it operates at a rather slow speed. All equipment shown in this sketch is standard and may be purchased from either of the above mentioned firms." E.D.D., Okla.

It has been reported that some farmers are using small motor driven blowers and a duct system to keep flies out of milking barns. The blower supplies air under slight pressure to a long thin rectangular nozzle placed above each door opening. Flies will not come in through the blast of air. Special blower type fans are used.

Gas Storage of Apples

Last fall several large New York growers of McIntosh applies undertook a new method of storage which was developed in England and has been under investigation and trial in this country at Cornell University. The process resembles hibernation. The apples are "put to sleep" in the fall right after they are picked by sealing them in a cooled airtight room and keeping them there undisturbed until they are to be marketed.

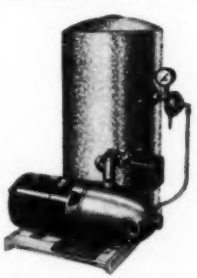
The explanation of the process is that fruit is still alive and continues to breath after it is picked. In this active condition it deteriorates rapidly. Cold storage slows down this process of respiration, but storage in carbon dioxide gas slows it still more. In fact, the fruit remains quite dormant, and perishable varieties such as McIntosh which are fall and early winter apples may be stored for much longer periods, and should bring a better price when placed on an "out of season" market.

The process is not foolproof. The storage seal must be nearly perfect so the amount of gas can be controlled. The apples give off their own carbon dioxide, and tests of the storage air must be made frequently and measured ventilation provided to keep the concentration just right. The room cannot be entered for examining the fruit during the storage period. Storage temperatures are 5° to 10° above that of customary cold storage. Electric power is used for cooling and ventilation.

The story might be a success story except for the fact that there was an excess of apples this spring, and it is reported that the McIntosh price was lower when the apples were taken out of storage than when put in. This does not mean that the process is a failure, but it still needs study both in its scientific and economic application.

Bring the joys of
RUNNING WATER
to YOUR HOME with an
F&W WATER SYSTEM
★ AUTOMATIC
★ DEPENDABLE
★ ECONOMICAL

Take FULL advantage of the electric power available to you. Install an F&W Water System and enjoy running water where you want it, when you want it. Exclusive F&W features are backed by 75 years' experience, proved by thousands of installations. No *rusty* water: F&W Systems are corrosion proof. No *oily* water: F&W's special construction keeps oil and water separate. Fully automatic controls, always-dependable operation save you time and trouble. Sturdy construction, low operating costs save you money for years to come.



There's an F&W Water System exactly suited to your needs. Compact unit pictured is automatic, dependable, economical—ideal for small homes. Other shallow and deep well systems; jet pumps, sump pumps, pump jacks—for every requirement.

FREE! Write for interesting booklet, "Running Water for Rural Homes."

FLINT & WALLING MFG. CO., INC.
955 Oak St., Kendallville, Ind.

75th Anniversary Year

Conti-Glo
SUNLAMP

Hang an Ultraviolet Conti-Glo Sunlamp in your laying pens; keep your hens supplied with Vitamin D. Cheaper than cod liver oil or substitute. Have healthier, bigger birds, more and better eggs.

A Post-Card will bring Descriptive Literature.
CONTI-GLO DIVISION
CONTINENTAL LITHOGRAPH CORP'N.
956 E. 72nd St., Cleveland, Ohio

3

will benefit if you tell manufacturers you saw their advertisement in

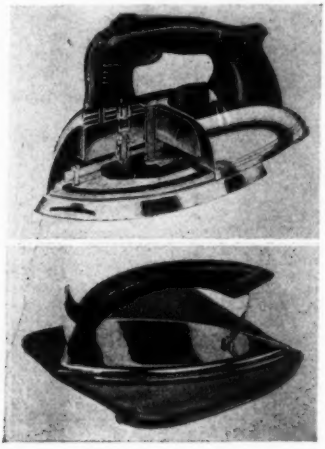
ELECTRICITY ON THE FARM

yourself, the manufacturer, and this magazine, which aims to be of all possible service.

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

Two New Electric Irons

The "Aluron" is a new combination steam or dry iron. It weighs 4½ pounds or 5 pounds when filled with ½ pint of water. Heat control is automatic when set for the fabric to be ironed. If you want to



steam as you iron, just open the control knob on the handle for the amount of steam wanted. The knob regulates the rate at which water drips out of the reservoir onto the heated sole plate where the steam is generated. Reservoir is filled through handle, and emptied through handle by tipping on nose. Use steam for silks, rayon, wool; and dry ironing for cotton or linen. May be tipped on heel stand when not in use. Price $14.95.

The folding Travel Iron weighs under 2 pounds, has cool Textolite handle and thermometer indicating temperature. 500 watts. With cord, plug and zipper case $4.95.

One hundred and forty-one species of insects, nearly all injurious to crops, and 120 species of weed seeds are eaten by the quail. A family of two adult quail and ten young quail will consume some 800,000 insects and 59,000,000 weed seeds in a year!

New Publications

(Publications are obtainable from the addresses given in the descriptions.)

• ELECTRIC WATER SYSTEM FOR THE FARM. Univ. of Ga. Exten. Bul. 483, Athens, Ga. 30 pp. An excellent bulletin on selection, operation, installation of pumps, water systems, pipes, etc.

• ELECTRIC HELPERS FOR THE FARM FAMILY. Rur. Elec. Section, General Electric Co., Schenectady, N. Y. 44 pp., illus. An excellently printed and illus. book on what electricity can do on the farm and in the farm home. No advertising.

• WATERING THE FARM GARDEN. Va. Exten. Cir. E-352, Blacksburg, Va. 8 pp., illus. Hose, sprinkler, water system. Costs. Results.

• AIR COOLED OR COMMON APPLE STORAGE AND ITS MANAGEMENT. Cornell Exten. Bul. 453, Ithaca, N. Y. 28 pp., illus. Types, construction, vents, fans, etc.

• SILO DURABILITY AND MAINTENANCE. Cornell Exten. Bul. 457. 24 pp., illus. Types, effect of silage, fire, weather on silo walls.

• HOMES FOR LAYING HENS. Cornell Exten. Bul. 451. 44 pp., illus. Details of construction and remodeling many types of laying houses.

• PRECOOLING OF STRAWBERRIES. La. Bul. 331, (P.O.) Louisiana State University, La. 22 pp. Results of studies of precooling for shipment.

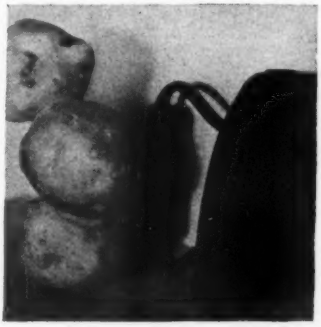
• PRECOOLING AND DRYING OF WASHED IRISH POTATOES. La. Bul. 332. (La. State Univ., La.) 22 pp. Studies of low cost methods to improve quality and keeping of Louisiana potatoes.

• GOOD-BYE TO FUSES. Small booklet on Multi-Breakers. Cutler-Hammer, Inc., Milwaukee, Wis.

• CAREERS IN ELECTRICAL WIRING AND ELECTRICAL CONTRACTING. 32 pp., 8½ x 11, paper cover. $1.00. The Institute for Research, 537 S. Dearborn St., Chicago. What is involved, training necessary, employment, pay, unions, good and bad features.

• ELECTRICITY IN THE HOME AND ON THE FARM. (Book) John Wiley & Sons, New York. 372 pp., 130 illus., $2.75. 2nd Ed. By Dr. Forrest B. Wright of Cornell. Written for Agric. students and farmers. Includes instructions for 39 electrical jobs, and eleven chapters on principles of electricity, terms, induction, generators and motors, direct and alternating currents, power transmission and distribution, wiring systems for farm and home, etc.

Some Potato! (Above) Oh, ho, ho! All fagged out from ironing over the stove this hot weather. (Below) I'll turn around and push the old thing out and get an electric iron.



Classified Advertising

ELECTROCUTE FLIES—*"Cheaper than Spraying"*—LYON Fly Electrocutors cost less than 1c per day to operate. *Low delivered price!* Order direct or see your dealer. COMPLETE POULTRY SUPPLIES—Infra-Red Ray and Fan Brooders, Alarms, *Parts and Plans for building your own brooder.* Over 150 items, FREE 52-PAGE CATALOG! Lyon Rural Electric Company, Dept. EF, Greensboro, N. C., or San Diego, California.

GET YOUR FREE COPY NOW. Bussey 100-page book for Poultrymen. Low Factory Prices. Parts for electric brooders and batteries; heating assemblies; wire Fabrics; Poultry Department. Save money. BUSSEY PEN PRODUCTS, 5171 West 65th St., Chicago.

POULTRY SUNLAMPS — only $12.50 f.o.b factory for the GATES GUARD-RAY complete with G-E Transformer. G-E S-4 Sunlamp and 12-in. Aluminum Reflector. *Guard-Ray is made exclusively for poultry irradiation.* Write Geo. W. Gates & Co., Franklin Square, N. Y.

POULTRY TIME SWITCHES pay for themselves in increased egg production. Five models from $3.95 to $18. All-electric or manually wound. With or without dimmer circuit. Write for information. AUTOMATIC ELECTRIC MANUFACTURING CO., Mankato, Minnesota.

FUN FOR ALL—the whole family can take part in this contest. CASH PRIZES will be awarded for the best suggestions for a last line to complete the verse at the bottom of this page.

What Would YOU Say?

Rhyme Contest

SEPTEMBER CONTEST RULES: Seven cash prizes will be awarded for the best last line to complete the verse in the coupon below. Your suggestion should rhyme with the second line.

The first prize will be $20 cash; the second prize, $5.

In addition, five consolation prizes of $3 each will be awarded for the best last line furnished.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

All members of the farm family to whom this magazine was sent may enter, but each contestant may submit only one line.

Question "A" must be answered.

Entries should be sent to the Contest Editor, ELECTRICITY ON THE FARM, 6 No. Michigan Avenue, Chicago, Illinois, and must be postmarked before September 30. The decision of the judges is final and all entries become the property of ELECTRICITY ON THE FARM.

Winning names and entries will be announced in the November issue.

Send your entry on the coupon or make out a similar form on a plain sheet of paper or government postcard.

Electric Power is just the thing
To ward off Housemaid's knees
Try it when you clean next spring

My suggestion for a fourth line to the above verse is:

.....

.....

(a) How do you heat your house?

☐ Steam or Hot Water System?
☐ Hot Air Furnace? ☐ Stoves?

Which fuel or firing method do you use?

☐ Coal, hand-fired? ☐ Coal, stoker fired?
☐ Oil? ☐ Wood? ☐ Gas?

My name is.....

R.F.D..... Post Office.....

County..... State.....

I get electricity from.....(9-41)

July Contest Awards

for the last line of this verse:

She scrubbed the clothes each Monday
Until her hands were sore,
But now she's bought a washer

.....

FIRST PRIZE—$20 Cash

"Her 'knuckling down' is o'er!"
ELLIOTT SCOTT,
Route 9, Box 187-A,
San Antonio, Texas

SECOND PRIZE—$5 Cash

"To 'snap' into this chore."
E. F. DITTMER,
RFD2, Holgate, Ohio

Five Consolation Prizes—$3 Each

"To 'plug' that heinous chore."
FREDA G. LUND,
RFD1, Berlin, Connecticut

"That 'wash board slaves' adore."
V. G. BOWSER,
112 E. Mill Street, Bremen, Indiana

"Watt magic! Wash-jag's o'er!"
MRS. LOLA SCOTT,
Route 9, Box 187-A,
San Antonio, Texas

"And bliss, not blisters score."
MRS. VAUGHN McCLANE,
RFD1, Enid, Oklahoma

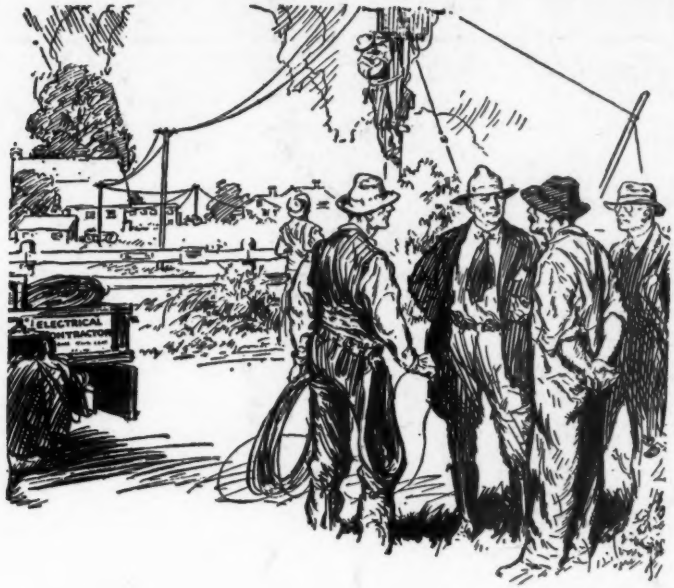
"Enter pleasure! Exit bore!"
GORDON BIGLER,
Collinston, Utah

HONORABLE MENTION

The following names are deserving of honorable mention for the lines submitted:

Mrs. Chas. Hatfield, RFD1, Belmont, Wisconsin; Mrs. C. L. Altenburg, RFD2, Chana, Illinois; Anna Doyle, Leahey Ave., So. Hadley, Massachusetts; M. H. Neel, RFD1, Ceres, Virginia; John Griffin, RFD2, Lyman Road, So. Hadley Falls, Massachusetts; Miss Jeanette Tjepkema, Route 2, Brandon, Wisconsin; F. W. Beck, RFD2, Council Bluffs, Iowa; Louis Wilson, RFD1, Fenton, Illinois.

If Electricity Cost Nothing to Make



EVEN if electricity could be made for nothing — the cost of using it in your home would not be greatly changed. A large part of what you pay for electric light and home convenience is in the cost of *delivering it to your fingertips* after it is made — and *keeping it there every minute.*

To properly serve you, there is necessary a vast investment in the lines and equipment to carry, control and regulate. Money must be spent to maintain all of these lines and this equipment at a high standard for dependable service. An organization must be on duty day and night.

Whether waterpower or steampower — the principle is the same. The largest part of the cost is not in the making, but the delivery and maintenance of the service for any and every need, whenever you wish it.

Everyone of these steps is vital! Your home and this community could not risk anything less. In these days, when electricity is used in a hundred ways besides lighting, home life and health depend more than ever on the quality of service.

Yet today your money for electricity *buys more* and *does more things* than ever. What else in the family budget can say as much! Other living costs, taxes and the like are up, but here's one thing that's the cheapest in history . . . a penny-priced bargain in better living.

ASK YOUR ELECTRIC COMPANY

or your electrical equipment dealer if you need further information. Or, if you prefer, address your inquiries to ELECTRICITY ON THE FARM, 24 West 40th Street, New York, or 6 No. Michigan Avenue, Chicago.

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ELECTRICITY ON THE FARM
24 West 40th Street
New York, N. Y.

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